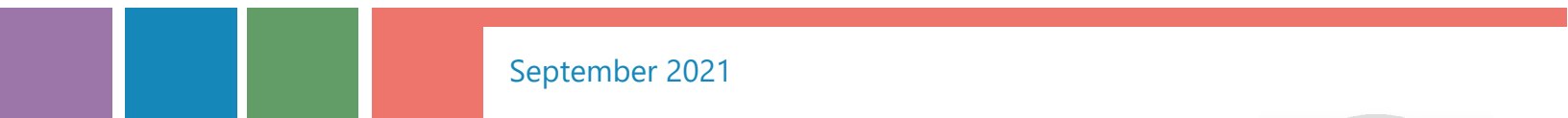




Exploring Mathematics Transitions:

High School Math, Assessments & Postsecondary Math Success



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Authors

Carol Jenner, PhD

Education Research & Data Center

About the ERDC

The research presented here uses data from the Education Research and Data Center, located in the Washington Office of Financial Management. ERDC works with partner agencies to conduct powerful analyses of learning that can help inform the decision-making of Washington legislators, parents, and education providers. ERDC's data system is a statewide longitudinal data system that includes de-identified data about people's preschool, educational and workforce experiences.

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Address

Education Research and Data Center
106 11th Ave SW, Suite 2200
PO Box 43124
Olympia, WA 98504-3113

Phone

360-902-0599

Fax

360-725-5174

Email

erdc@ofm.wa.gov

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Executive Summary

This report is a descriptive assessment of the relationships between high school math course taking, performance on the standardized mathematics assessment, and postsecondary mathematics course taking. This analysis uses course-taking and assessment data for the high school Class of 2017 linked with 2018 math course-taking data for public postsecondary institutions in Washington.¹

This report is an extension of the findings published earlier.² It incorporates high school mathematics course categories developed by Office of Superintendent of Public Instruction (OSPI) and Smarter Balanced Assessment (SBA) math levels.

Since high school graduation requirements changed beginning with 9th graders entering in 2015, the findings here will serve as a benchmark to evaluate the impacts of the new requirements and the efforts to smooth the transition from high school to college-level mathematics.³

This report suggests that, as expected, rigorous high school mathematics course taking and higher SBA math levels are associated with higher postsecondary college-level course taking and lower pre-college course-taking rates.

¹ "School year" refers to the four-digit year in which the school year ends. School year 2018 refers to 2017–18.

² See Chen, V., 2019. "Mathematics Coursetaking Pathway to College STEM for Washington State High School Students." Education Research and Data Center, State of Washington. Also, Jenner, C., 2020. "An Exploration of Math Course Taking: How Do High School Students Satisfy the Third Credit of the Mathematics Graduation Requirement?" ERDC, State of Washington.

³ The Washington State Board of Education publishes graduation requirements by class year at <https://sbe.wa.gov/our-work/graduation-requirements>.

Background

In recognition that mathematics requirements are a frequent stumbling block to college success, there is an ongoing shift away from the traditional college algebra-to-calculus sequence. Mathematics courses focused on conceptual understanding, interpretation of data, modeling, and problem-solving are more appropriate for college students not planning to enter STEM fields.⁴ Martin and Krueger point out that “algebra-intensive admissions, placement and remediation requirements” are the primary barrier to degree completion.⁵

There is ongoing work among Washington state agencies to smooth the transition. Office of Superintendent of Public Instruction (OSPI) has adopted the Smarter Balanced Assessment, which aligns with state learning goals.⁶ Graduation requirements have evolved to include college and career-ready math pathways other than the traditional algebra-to-calculus model. The State Board for Community and Technical Colleges (SBCTC) is developing strategies for removing math-related stumbling blocks in degree completion.⁷

High School Student Data

OSPI prepared and provided three files for this study: 1) the 2017 graduate cohort file; 2) related assessment data; and 3) high school course-taking data.

There were 82,544 members of the 2017 graduation cohort, including graduates, dropouts, and continuing students.

This analysis focuses on the 65,491 graduates.

Assessment data

The Mathematics Smarter Balanced Assessment (SBA) is an end-of-year summative assessment typically given at the end of 10th grade. OSPI provided SBA Math assessment results for 48,421 students in the cohort. Results are reported in four levels. Students who score in Levels 3 or 4 have demonstrated that they meet mathematics learning standards. Students with SBA math results of Level 1 or 2 have not.

⁴ Sheldon P. Gordon (2008) What's Wrong with College Algebra?, PRIMUS, 18:6, 516–541

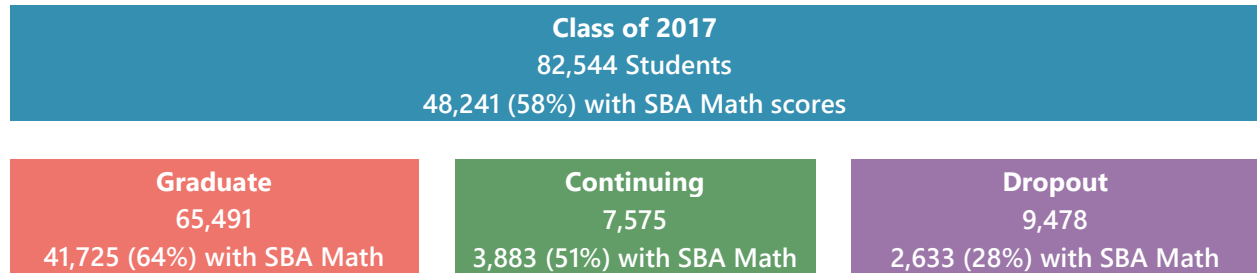
⁵ Jeremy Martin and Carl Krueger, “Modernizing Math Pathways to Support Student Transitions.” Education Commission of the States, 2020. https://www.ecs.org/wp-content/uploads/Modernizing_Math_Pathways_to_Support_Student_Transitions.pdf

⁶ See OSPI website at <https://k12.wa.us/student-success/testing/state-testing> for information about the Smarter Balanced Assessment

⁷ See the SBCTC “Math Initiative” work at <https://www.sbctc.edu/colleges-staff/programs-services/math/>.

Figure 1 shows the percentage of students with available SBA Math test scores for the three categories of students in the Class of 2017.

Figure 1: Classification and Flow of Students in Class of 2017



High school math course-taking data consisted of records for over 400,000 high school-level mathematics courses taken by students in the Class of 2017 in school years 2014 through 2017.⁸ Each record includes the district and school, state course code and title, letter grade, and credits attempted and earned. Also included is a math course categorization developed by OSPI that condenses the 75 different state course codes in the data into 14 categories:

- AP Calculus + (includes math courses beyond calculus)
- AP Statistics
- Algebra 1
- Algebra 2
- Applied
- Bridge to College⁹
- Business/Computer
- Calculus
- Geometry
- High Integrated/Multiple
- IB – International Baccalaureate
- Integrated/Multiple
- Post-Algebra 2
- Statistics

⁸ Mathematics courses below high school level were excluded from this analysis. These include Pre-Algebra, individualized math courses, test preparation courses, and other support courses.

⁹ The Bridge to College Mathematics course is designed for students whose SBA math assessments indicate that they do not meet state learning standards in mathematics. Students who earn a B grade or above in Bridge courses are considered college-ready. For current information regarding course, see OSPI Bulletin No. 003-21, available at <https://www.k12.wa.us/sites/default/files/public/bulletinsmemos/bulletins2021/Bulletin-003-21.pdf>.

Appendix A shows the state course codes assigned to these categories, along with descriptions. This analysis includes only the high school-level math courses for which a student earned credit.

High School Math Course-Taking Patterns

For the class of 2017, the high school graduation requirement was three units, including Algebra 1, Geometry, and Algebra 2.¹⁰ Although the on-grade standard for 9th grade is Algebra 1, many students take Algebra 1 in middle school and start their math sequence in high school with Geometry in 9th grade.

Table 1 shows the first high school level mathematics course related to the total number of high school level credits earned. Some students – including those with individualized programs – do not complete credits in traditional high school-level courses. Credits for high-school level courses taken prior to high school are not included in the credit totals.

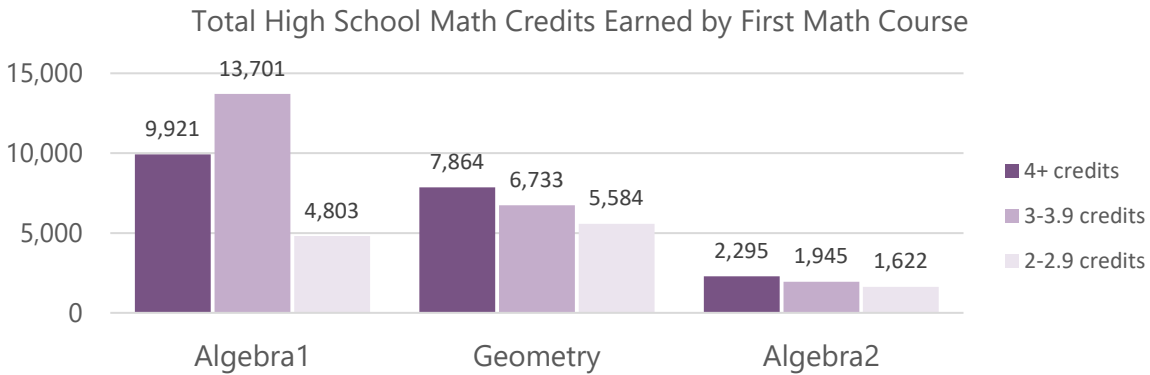
Table 1: First high school level math course and total high school level math credits

| | Algebra 1 | Geometry | Algebra 2 | Advanced | Applied | Total |
|---------------|------------------|-----------------|------------------|-----------------|----------------|---------------|
| 4+ credits | 9,921 | 7,864 | 2,295 | 462 | 299 | 20,841 |
| 3-3.9 credits | 13,701 | 6,733 | 1,945 | 504 | 207 | 23,090 |
| 2-2.9 credits | 4,803 | 5,584 | 1,622 | 450 | 207 | 12,666 |
| 1-1.9 credit | 1,102 | 1,080 | 803 | 404 | 322 | 3,711 |
| <1 credit | | | | | | 5,183 |
| Total | 29,527 | 21,261 | 6,665 | 1,820 | 1,035 | 65,491 |

¹⁰ Washington public high school students in the classes of 2016 through 2018 were subject to graduation requirements that specified a third credit of mathematics beyond Algebra 1/Integrated Mathematics I and Geometry/Integrated Mathematics II.2 For this third credit, Algebra 2/Integrated Mathematics III was required of most students, but a student could pursue a third math credit other than Algebra 2 or Integrated Mathematics III if the choice was based on a career-oriented program being pursued by the student. Career and Technical Education (CTE) courses with equivalent mathematics content could be substituted for each of the required mathematics courses. See WAC 180-51-067 <https://apps.leg.wa.gov/wac/default.aspx?cite=180-51-067>.

Figure 2 illustrates the relationship shown in Table 1 for the three most common courses that begin students’ math pathways in high school — Algebra 1, Geometry, and Algebra 2.

Figure 2: First high school level math course and total high school level math credits earned



Key takeaways from Table 1 and Figure 2 are:

- Students whose first high school–level math course is Geometry or Algebra 2 are more likely to earn four or more math credits.
- Students starting with Algebra 1 were more likely to earn the minimum of three credits of math required for graduation.

Table 2 shows the number of 2017 high school graduates earning credit in mathematics categories by year for 2014–2017. The percentages shown represent the number of students earning credit in a particular category as a share of all students earning mathematics credit in the corresponding year.

The distribution of courses completed each year follows the anticipated pattern:

- Over half of the students earned credit in Algebra 1 in 2014, their 9th grade year. An additional 35 percent earned credit in Geometry.
- Geometry (46%) and Algebra 2 (33%) were the most common 10th grade courses.
- Algebra 2 and the advanced courses (Post Algebra 2, IB, statistics, calculus) were the most common 11th grade courses.
- 12th graders were inclined to take the advanced courses.
- About 5 percent of the 12th grade math course takers completed a Bridge to College Mathematics course to support a successful transition to college-level mathematics.

Table 2: Number of Graduates with Credit by Course Category and School Year

| Course | 2014 | | 2015 | | 2016 | | 2017 | |
|---|----------|------|----------|------|----------|------|----------|------|
| | <i>n</i> | % | <i>n</i> | % | <i>n</i> | % | <i>n</i> | % |
| Algebra 1 or equivalent | 29,003 | 54% | 5,941 | 11% | 3,689 | 8% | 2,268 | 6% |
| Geometry | 19,055 | 35% | 25,585 | 46% | 5,876 | 12% | 2,271 | 6% |
| Algebra 2 or equivalent | 5,645 | 10% | 18,233 | 33% | 20,679 | 42% | 5,956 | 16% |
| Applied or Business/Computer | 569 | 1% | 617 | 1% | 2,461 | 5% | 5,999 | 16% |
| Bridge to College Mathematics | | | | | 86 | <1% | 1,902 | 5% |
| Post Algebra 2 or IB or Statistics or AP Statistics | 1,280 | 2% | 6,573 | 12% | 15,080 | 31% | 14,586 | 40% |
| Calculus or AP Calculus + | 70 | <1% | 898 | 2% | 4,341 | 9% | 7,361 | 20% |
| Any Math | 53,929 | 100% | 55,570 | 100% | 48,986 | 100% | 36,666 | 100% |

Category counts and percentages may not add to the totals because students may take courses in more than one category in a single year.

SBA Math Scores and course-taking patterns

SBA Math scores were available for 41,725 graduates in the Class of 2017. Table 3 shows availability by math course-taking characteristics in high school.

Table 3: SBA Math score availability and high school math course-taking

| Category | All Grads | Grads with Math SBA | |
|---------------------------------------|-----------|---------------------|-----|
| | Count | Count | % |
| 1 High school graduates, 2017 | 65,491 | 41,725 | 64% |
| 2 Algebra 2 credit | 40,721 | 26,282 | 65% |
| 3 No Algebra 2 credit | 24,770 | 15,443 | 62% |
| 4 Two or more credits beyond Geometry | 29,429 | 19,077 | 65% |
| 5 Bridge to College Mathematics | 1,499 | 1,215 | 81% |
| 6 Math course in 12th grade | 36,713 | 24,449 | 67% |
| 7 No math course in 12th grade | 28,778 | 17,276 | 60% |
| 8 AP Calculus or AP Statistics | 9,980 | 6,076 | 61% |
| 9 First math course: Algebra 1 | 28,289 | 19,818 | 70% |
| 10 First math course: Geometry | 20,901 | 12,757 | 61% |
| 11 First math course: Algebra 2 | 6,535 | 3,442 | 53% |
| 12 Low-income | 30,047 | 20,890 | 70% |
| 13 Non-low income | 35,444 | 20,835 | 59% |

Overall, SBA results were available for 64 percent of the 2017 graduates.¹¹ Most categories showed similar levels. There were notable exceptions and patterns:

- Bridge to College Mathematics courses are for students with Level 1 or 2 SBA math scores. A relatively high percentage of students completing Bridge courses (81%) have SBA scores.
- Seventy percent of students who started their math sequence with Algebra 1 have SBA results. A lower share (61%) of students who begin with Geometry have SBA results. Only 53 percent of students who take Algebra 2 as their first math course have SBA results.
- There are notable differences between low-income students with SBA results (70%) and non-low income students (59%).¹²

Table 4 shows a breakout of SBA scores by the math course-taking patterns used in Table 3. Percentages indicate the share of students with SBA scores testing at each SBA level. Some categories have been

¹¹ Some students use alternative assessment routes to demonstrate proficiency in math at the high school level and do not have Mathematics SBA scores. For Class of 2017 students, these included end-of-course exams for Algebra 1 or Geometry. Some students with individualized instruction took the Washington Access to Instruction and Measurement (WA-AIM). See graduation requirements for the Class of 2017 on the State Board of Education website at <https://www.sbe.wa.gov/our-work/graduation-requirements/graduation-requirements-class-2017>.

¹² Low-income students are those eligible for free or reduced-price meals.

collapsed to avoid the display of small cell sizes (less than 10).

Table 4: SBA scores by level and high school math course taking

| Category | Total | No Score | SBA Math Assessment | | | |
|---------------------------------------|--------|----------|---------------------|---------------|---------------|--------------|
| | | | Level 1 | Level 2 | Level 3 | Level 4 |
| 1 High school graduates, 2017 | 65,491 | 23,766 | 12,961 31% | 12,295 29% | 10,228 25% | 6,241 15% |
| 2 Algebra 2 credit | 40,721 | 14,439 | 5,615 21% | 8,124 31% | 7,773 30% | 4,770 18% |
| 3 No Algebra 2 credit | 24,770 | 9,327 | 7,346 48% | 4,171 27% | 2,455 16% | 1,471 10% |
| 4 Two or more credits beyond Geometry | 29,429 | 10,352 | 2,363 12% | 4,859 25% | 6,597 35% | 5,258 28% |
| 5 Bridge to College Mathematics | 1,499 | 284 | 454 37% | 593 49% | 168* 14% | |
| 6 AP Calculus or AP Statistics | 9,980 | 3,904 | 248 4% | 739 12% | 2,026 33% | 3,063 50% |
| 7 First math course: Algebra 1 | 28,289 | 8,471 | 8,428 43% | 7,281 37% | 3,484 18% | 625 3% |
| 8 First math course: Geometry | 20,901 | 8,144 | 1,771 14% | 3,221 25% | 4,723 37% | 3,042 24% |
| 9 First math course: Algebra 2 | 6,535 | 3,093 | 277 8% | 510 15% | 1,000 29% | 1,655 48% |
| 10 Math course in 12th grade | 36,713 | 12,264 | 7,322 30% | 6,950 28% | 6,036 25% | 4,141 17% |
| 11 No math course in 12th grade | 28,778 | 11,502 | 5,639 33% | 5,345 31% | 4,192 24% | 2,100 12% |
| 12 Low-income students | 30,047 | 9,157 | 8,663 41% | 6,557 31% | 4,106 20% | 1,564 7% |
| 13 Non-low income students | 35,444 | 14,609 | 4,298 21% | 5,738 28% | 6,122 29% | 4,677 22% |

*Cells combined to suppress small n sizes.

Examining the breakout by SBA math level shows:

- Overall, 40 percent of graduates met math standards by attaining math SBA Level 3 or 4.
- Since students typically take the SBA assessments in 10th grade, those starting their high school mathematics sequence with the more advanced courses had higher SBA scores than those whose first high school-level course was Algebra 1.

Postsecondary Student Data

Postsecondary math course-taking data are available for 30,406 students in the 2017 cohort who enrolled in Washington public colleges and universities in the 2018 academic year.¹³

Appendix B shows the public postsecondary enrollment and postsecondary mathematics course-taking rates for the thirteen high school math course-taking categories identified in Table 4.

A standard outcome measure for recent high school graduates is the percentage of high school graduates enrolled in pre-college mathematics courses in the year following high school graduation. This measure can be assessed only for those enrolled in Washington public postsecondary institutions.¹⁴ Historically, most pre-college work takes place in the state's community and technical college system. The disparity between pre-college course taking between CTCs and public baccalaureates has been decreasing since 2006, however. In 2006, 49 percent of high school graduates attending CTCs enrolled in a pre-college math course. The corresponding rate for public baccalaureates was 8 percent. In 2018, 30 percent of high school graduates were enrolled in pre-college math, while 11 percent of public baccalaureate students enrolled in pre-college math courses.¹⁵

Pre-college mathematics includes courses in the algebra sequence, beginning with pre-algebra. Lower-level mathematics courses, such as "Arithmetic" or "Math Literacy," are Basic Skills math, excluded from this analysis.

An outcome measure less frequently cited is success in college-level courses in the first year after high school graduation. This analysis includes an assessment of both pre-college course-taking and college-level course taking. In addition, college-level courses are classified as either general college mathematics (meeting general education requirements for non-STEM majors, or STEM math (pre-calculus, calculus, or higher level).

See Appendix C for a discussion about how these courses were classified.

¹³ Public postsecondary course-taking data is extracted from ERDC's data warehouse. The original source of the public baccalaureate institution data is PCHEES – Public Centralized Higher Education Enrollment System. Data for community and technical colleges is from the SBCTC MIS.

¹⁴ The state's public postsecondary institutions include 34 community and technical colleges and 6 baccalaureate institutions.

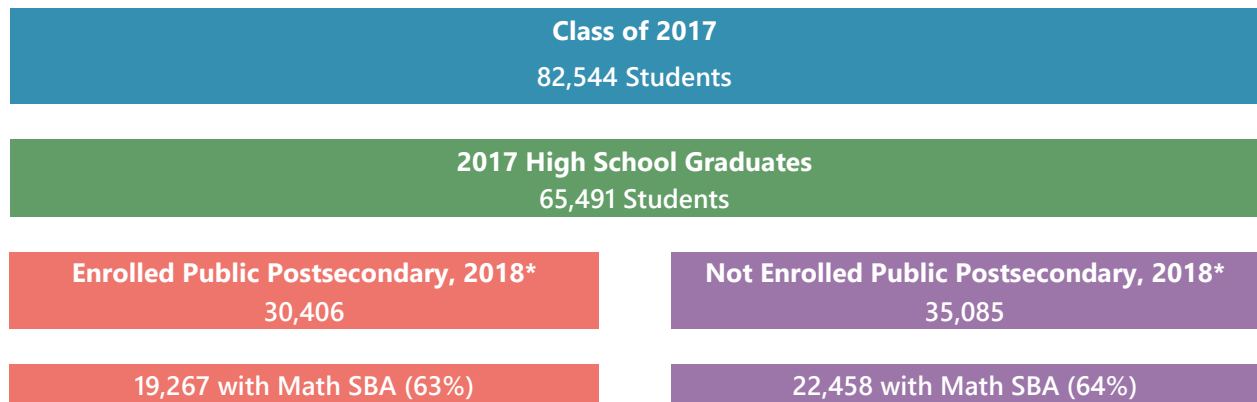
¹⁵ See the Pre-College Course-Taking chart on the ERDC High School Graduate Outcomes display at <https://erdc.wa.gov/data-dashboards/high-school-graduate-outcomes>.

SBA Assessments and Postsecondary Enrollment

Of the 65,491 Class of 2017 high school graduates, 30,406 enrolled in Washington public postsecondary institutions in 2018.

Figure 3 shows the counts and percentages of students who enrolled in Washington public postsecondary institutions. Note that those “Not Enrolled” may have enrolled in an independent or out-of-state institution.

Figure 3: Classification and Flow of Students in Class of 2017



* “Enrolled” here means enrolled in Washington public postsecondary institutions

Appendix D shows the distribution of SBA mathematics assessment levels by high school course-taking characteristics and public postsecondary enrollment status.

Of the 30,406 Class of 2017 graduates enrolled in Washington public postsecondary institutions, 20,825 completed either pre-college or college-level math courses in the year after high school graduation.

Table 5 shows the counts of students earning postsecondary math credit in 2018 by SBA Math assessment level. The percentages shown represent the number of students earning credit in each type of course relative to the number who earned credit in any math course. Percentages will not add to 100 percent because students can take courses in more than one category.

Table 5: All graduates earning postsecondary math credit, including pre-college credit

| SBA Assessment Category | All Graduates | Enrolled Postsecondary 2018 | Earned Postsecondary Math Credit | Postsecondary Math Course Type | | | |
|-------------------------|---------------|-----------------------------|----------------------------------|--------------------------------|---------------|---------------|--------------|
| | | | | Pre-College | College-Level | College-Level | |
| | | | | | | STEM | General |
| All levels | 65,491 | 30,406 | 20,825 | 7,580 36% | 15,599 75% | 8,724 42% | 9,254 44% |
| No SBA | 23,766 | 11,139 | 7,359 | 2,246 31% | 5,827 79% | 3,531 48% | 3,247 44% |
| Level 1 | 12,961 | 4,329 | 2,955 | 2,236 76% | 1,155 39% | 305 10% | 934 32% |
| Level 2 | 12,295 | 5,796 | 3,948 | 2,127 54% | 2,566 65% | 920 23% | 1,947 49% |
| Level 3 | 10,228 | 5,599 | 3,944 | 850 22% | 3,495 89% | 1,882 48% | 2,233 57% |
| Level 4 | 6,241 | 3,543 | 2,619 | 121 5% | 2,556 98% | 2,086 80% | 893 34% |

“Enrolled” here means enrolled in Washington public postsecondary institutions. Students who enroll in independent or out-of-state institutions are not included in this count.

Subgroup Findings

The following tables serve as examples of the types of subgroups that can be identified within the group of high school graduates. These are:

1. total high school math credits earned and type of course
2. specific courses taken
3. timing of course taking
4. student characteristics
5. combinations (e.g., particular course type and gender)

1. Grouping by total high school math credits earned and/or type of course

Table 6 shows the counts of students earning postsecondary math credit in 2018 by SBA Math assessment level for those who completed Algebra 2 or equivalent in high school. Equivalent courses include higher-level Integrated Mathematics taken after Geometry. Usually, these were integrated mathematics courses or courses that combined Algebra 2 and Trigonometry. Students who earned credit in courses for which Algebra 2 was the prerequisite (calculus, for example) were included in this group.

Table 6: Graduates with Algebra 2 or equivalent credit

| SBA Assessment Category | All Graduates | Enrolled Postsecondary 2018* | Earned Postsecondary Math Credit | Postsecondary Math Course Type | | | |
|-------------------------|---------------|------------------------------|----------------------------------|--------------------------------|---------------|---------------|--------------|
| | | | | Pre-College | College-Level | College Level | |
| | | | | | | STEM | General |
| All levels | 40,721 | 21,373 | 14,902 | 4,914 33% | 11,758 79% | 6,639 45% | 7,005 47% |
| No SBA | 14,439 | 7,497 | 5,033 | 1,386 28% | 4,148 82% | 2,538 50% | 2,321 46% |
| Level 1 | 5,615 | 2,459 | 1,734 | 1,258 73% | 778 45% | 237 14% | 610 35% |
| Level 2 | 8,124 | 4,187 | 2,921 | 1,505 52% | 2,001 69% | 730 25% | 1,514 52% |
| Level 3 | 7,773 | 4,461 | 3,185 | 681 21% | 2,839 89% | 1,518 48% | 1,828 57% |
| Level 4 | 4,770 | 2,769 | 2,029 | 84 4% | 1,992 98% | 1,616 80% | 732 36% |

* "Enrolled" here means enrolled in Washington public postsecondary institutions. Students who enroll in independent or out-of-state institutions are not included in this count.

For 2017 high school graduates with Algebra 2 credit in high school and who earned mathematics credits in public postsecondary institutions in 2018:

- Overall, 79 percent earned college-level math credits in 2018. Forty-five percent earned STEM math credits. Forty-seven percent earned general education math credits.
- Forty-five percent of graduates with Level 1 SBA math scores earned college-level math credits; 98 percent of those with Level 4 SBA math scores earned college-level credits.
- As expected, pre-college course taking was highest for graduates with lower SBA math scores — ranging from 73 percent for those with Level 1 scores to 21 percent for those at Level 3. Only 4 percent of graduates scoring at Level 4 earned pre-college math credits.
- Except for graduates with Level 4 SBA scores, more students earned general education math credits than STEM credits.

Table 7 shows the counts of students earning postsecondary math credit in 2018 by SBA Math assessment level for those who did not complete Algebra 2 or equivalent in high school.

Table 7: Graduates without Algebra 2 or equivalent credit

| SBA Assessment Category | All Graduates | Enrolled Postsecondary 2018* | Earned Postsecondary Math Credit | Postsecondary Math Course Type | | | |
|-------------------------|---------------|------------------------------|----------------------------------|--------------------------------|---------------|---------------|--------------|
| | | | | Pre-College | College-Level | College Level | |
| | | | | | | STEM | General |
| All levels | 24,770 | 9,033 | 5,923 | 2,666 45% | 3,841 65% | 2,085 35% | 2,249 38% |
| No SBA | 9,327 | 3,642 | 2,326 | 860 37% | 1,679 72% | 993 43% | 926 40% |
| Level 1 | 7,346 | 1,870 | 1,221 | 978 80% | 377 31% | 68 6% | 324 27% |
| Level 2 | 4,171 | 1,609 | 1,027 | 622 61% | 565 55% | 190 19% | 433 42% |
| Level 3 | 2,455 | 1,138 | 759 | 169 22% | 656 86% | 364 48% | 405 53% |
| Level 4 | 1,471 | 774 | 590 | 37 6% | 564 96% | 470 80% | 161 27% |

* "Enrolled" here means enrolled in Washington public postsecondary institutions. Students who enroll in independent or out-of-state institutions are not included in this count.

For 2017 high school graduates who did not earn Algebra 2 credit in high school and who earned mathematics credits in public postsecondary institutions in 2018:

- Compared with graduates with high school Algebra 2 credit, those with no Algebra 2 credit had a greater tendency to enroll in pre-college courses and a lower tendency to enroll in STEM math.
- Overall, 65 percent of graduates earned college-level math credits in 2018, compared to 79 percent for those with Algebra 2. Thirty-five percent earned STEM math credits (compared to 45 percent). Thirty-eight percent earned general education math credits (compared to 47 percent).
- Thirty-one percent of graduates with Level 1 SBA math scores earned college-level math credits; 96 percent of those with Level 4 SBA math scores earned college-level credits.
- Again, as expected, pre-college course taking was highest for graduates with lower SBA math scores – ranging from 80 percent for those with Level 1 scores to 22 percent for those at Level 3. Six percent of graduates scoring at Level 4 earned pre-college math credits.
- Except for graduates with Level 4 SBA scores, more students earned general education math credits than STEM credits.

Table 8 shows the counts of students earning postsecondary math credit in 2018 by SBA Math assessment level for those who earned credit in two or more courses beyond Geometry in high school.

Table 8: Two or more credits beyond Geometry

| SBA Assessment Category | All Graduates | Enrolled Postsecondary 2018* | Earned Postsecondary Math Credit | Postsecondary Math Course Type | | | |
|-------------------------|---------------|------------------------------|----------------------------------|--------------------------------|---------------|---------------|--------------|
| | | | | Pre-College | College-Level | College Level | |
| | | | | | | STEM | General |
| All levels | 29,429 | 16,781 | 12,050 | 2,810 23% | 10,416 86% | 6,572 55% | 5,620 47% |
| No SBA | 10,352 | 5,658 | 3,956 | 715 18% | 3,552 90% | 2,418 61% | 1,771 45% |
| Level 1 | 2,363 | 1,246 | 901 | 598 66% | 470 52% | 174 19% | 345 38% |
| Level 2 | 4,859 | 2,865 | 2,044 | 927 45% | 1,517 74% | 606 30% | 1,119 55% |
| Level 3 | 6,597 | 3,952 | 2,865 | 497 17% | 2,625 92% | 1,513 53% | 1,622 57% |
| Level 4 | 5,258 | 3,060 | 2,284 | 73 3% | 2,252 99% | 1,861 81% | 763 33% |

* "Enrolled" here means enrolled in Washington public postsecondary institutions. Students who enroll in independent or out-of-state institutions are not included in this count.

For 2017 high school graduates who earned two or more credits beyond Geometry and who earned mathematics credits in public postsecondary institutions in 2018:

- Overall, 86 percent of graduates with two or more credits beyond Geometry earned college-level math credits in 2018. Fifty-five percent earned STEM math credits. Forty-seven percent earned general education math credits.
- Over half of graduates with Level 1 SBA math scores earned college-level math credits; 99 percent of those with Level 4 SBA math scores earned college-level credits.
- As expected, pre-college course taking was highest for graduates with lower SBA math scores – ranging from 66 percent for those with Level 1 scores to 17 percent for those at Level 3. Only 3 percent of graduates scoring at Level 4 earned pre-college math credits.
- Except for graduates with Level 4 SBA scores, more students earned general education math credits than STEM credits.

2. Groupings by specific high school courses taken

Table 9 shows the counts of students earning postsecondary math credit in 2018 by SBA Math assessment level for those who earned credit in a Bridge to College Mathematics in high school.

Table 9: Bridge to College Mathematics

| SBA Assessment Category | All Graduates | Enrolled Postsecondary 2018* | Earned Postsecondary Math Credit | Postsecondary Math Course Type | | | |
|-------------------------|---------------|------------------------------|----------------------------------|--------------------------------|---------------|---------------|------------|
| | | | | Pre-College | College-Level | College Level | |
| | | | | | | STEM | General |
| All levels | 1,499 | 725 | 541 | 308 57% | 310 57% | 58 11% | 273 50% |
| No SBA | 284 | 123 | 87 | 47 54% | 54 62% | 17 20% | 45 52% |
| Level 1 | 454 | 204 | 160 | 124 78% | 59 37% | 30 | 179 |
| Level 2 | 593 | 309 | 229 | 124 54% | 142 62% | 8% | 46% |
| Level 3 or 4 | 168 | 89 | 65 | 13 20% | 55 85% | 11 17% | 49 75% |

* "Enrolled" here means enrolled in Washington public postsecondary institutions. Students who enroll in independent or out-of-state institutions are not included in this count.

For 2017 high school graduates who completed a Bridge to College Mathematics course and who earned mathematics credits in public postsecondary institutions in 2018:

- Overall, 57 percent of graduates who completed a Bridge to College Mathematics course earned college-level math credits in 2018. Eleven percent earned STEM math credits. Fifty percent earned general education math credits.
- Thirty-seven percent of graduates with Level 1 SBA math scores earned college-level math credits; 62 percent of those with Level 2 SBA math scores earned college-level credits.
- As expected, pre-college course taking was highest for graduates with lower SBA math scores –78 percent for those with Level 1 scores and 54 percent for those at Level 3.
- Students at all SBA math levels earned more general education math credits than STEM credits.

Table 10 shows the counts of students earning postsecondary math credit in 2018 by SBA Math assessment level for those who completed an AP Calculus or AP Statistics course in high school.

Table 10: AP Calculus or AP Statistics credit

| SBA Assessment Category | All Graduates | Enrolled Postsecondary 2018* | Earned Postsecondary Math Credit | Postsecondary Math Course Type | | | |
|-------------------------|---------------|------------------------------|----------------------------------|--------------------------------|---------------|---------------|--------------|
| | | | | Pre-College | College-Level | College Level | |
| | | | | | | STEM | General |
| All levels | 9,980 | 5,641 | 4,094 | 408 10% | 3,906 95% | 3,015 74% | 1,569 38% |
| No SBA | 3,904 | 2,020 | 1,436 | 101 7% | 1,393 97% | 1,138 79% | 502 35% |
| Level 1 | 248 | 162 | 113 | 50 44% | 81 72% | 47 42% | 45 40% |
| Level 2 | 739 | 487 | 332 | 126 38% | 271 82% | 125 38% | 185 56% |
| Level 3 | 2,026 | 1,233 | 904 | 109 12% | 861 95% | 569 63% | 477 53% |
| Level 4 | 3,063 | 1,739 | 1,309 | 22 2% | 1,300 99% | 1,136 87% | 360 28% |

* "Enrolled" here means enrolled in Washington public postsecondary institutions. Students who enroll in independent or out-of-state institutions are not included in this count.

For 2017 high school graduates who completed AP Calculus or AP Statistics and who earned mathematics credits in public postsecondary institutions in 2018:

- Overall, 95 percent of graduates earned college-level math credits in 2018. Seventy-four percent earned STEM math credits. Thirty-eight percent earned general education math credits.
- Seventy-two percent of graduates with Level 1 SBA math scores earned college-level math credits; 99 percent of those with Level 4 SBA math scores earned college-level credits.
- As expected, pre-college course taking was highest for graduates with lower SBA math scores – ranging from 44 percent for those with Level 1 scores to 12 percent for those at Level 3. Only 2 percent of graduates scoring at Level 4 earned pre-college math credits.
- Except for graduates with Level 2 SBA scores, more students earned STEM math credits than general education math credits.

3. Groupings by the timing of course taking

Table 11 shows the counts of students earning postsecondary math credit in 2018 by SBA Math assessment level for those whose first high school–level mathematics course was Algebra 1.

Table 11: First high school–level course Algebra 1

| SBA Assessment Category | All Graduates | Enrolled Postsecondary 2018* | Earned Postsecondary Math Credit | Postsecondary Math Course Type | | | |
|-------------------------|---------------|------------------------------|----------------------------------|--------------------------------|---------------|---------------|--------------|
| | | | | Pre-College | College-Level | College Level | |
| | | | | | | STEM | General |
| All levels | 28,289 | 11,975 | 8,355 | 4,797 56% | 5,153 60% | 2,046 24% | 3,797 44% |
| No SBA | 8,471 | 3,588 | 2,412 | 1,295 52% | 1,544 63% | 670 27% | 1,105 45% |
| Level 1 | 8,428 | 2,869 | 2,018 | 1,673 78% | 786 37% | 186 9% | 655 31% |
| Level 2 | 7,281 | 3,348 | 2,332 | 1,405 59% | 1,438 60% | 469 20% | 1,136 48% |
| Level 3 | 3,484 | 1,832 | 1,331 | 383 28% | 1,133 84% | 530 39% | 784 58% |
| Level 4 | 625 | 338 | 262 | 41 15% | 252 92% | 191 70% | 117 43% |

* "Enrolled" here means enrolled in Washington public postsecondary institutions. Students who enroll in independent or out-of-state institutions are not included in this count.

For 2017 high school graduates whose first high school–level mathematics course was Algebra 1 and who earned mathematics credits in public postsecondary institutions in 2018:

- Overall, 60 percent of graduates earned college-level math credits in 2018. Twenty-four percent earned STEM math credits. Forty-four percent earned general education math credits.
- Thirty-seven percent of graduates with Level 1 SBA math scores earned college-level math credits; 92 percent of those with Level 4 SBA math scores earned college-level credits.
- As expected, pre-college course taking was highest for graduates with lower SBA math scores – ranging from 78 percent for those with Level 1 scores to 15 percent for those at Level 4.
- Except for graduates with Level 4 SBA scores, fewer students earned STEM math credits than general education math credits.

Table 12 shows the counts of students earning postsecondary math credit in 2018 by SBA Math assessment level for those whose first high school-level mathematics course was Geometry.

Table 12: First high school-level course Geometry

| SBA Assessment Category | All Graduates | Enrolled Postsecondary 2018* | Earned Postsecondary Math Credit | Postsecondary Math Course Type | | | |
|-------------------------|---------------|------------------------------|----------------------------------|--------------------------------|---------------|---------------|--------------|
| | | | | Pre-College | College-Level | College Level | |
| | | | | | | STEM | General |
| All levels | 20,901 | 11,270 | 7,661 | 1,828 24% | 6,634 86% | 4,004 52% | 3,751 48% |
| No SBA | 8,144 | 4,316 | 2,818 | 560 20% | 2,513 88% | 1,593 56% | 1,379 48% |
| Level 1 | 1,771 | 719 | 468 | 335 68% | 236 48% | 78 16% | 173 35% |
| Level 2 | 3,221 | 1,701 | 1,150 | 530 46% | 843 72% | 338 29% | 612 53% |
| Level 3 | 4,723 | 2,757 | 1,920 | 353 18% | 1,758 91% | 985 51% | 1,093 57% |
| Level 4 | 3,042 | 1,777 | 1,305 | 50 4% | 1,284 98% | 1,010 77% | 494 38% |

* "Enrolled" here means enrolled in Washington public postsecondary institutions. Students who enroll in independent or out-of-state institutions are not included in this count.

For 2017 high school graduates whose first high school level course was Geometry and who earned mathematics credits in public postsecondary institutions in 2018:

- Overall, 86 percent of graduates earned college-level math credits in 2018. Fifty-two percent earned STEM math credits. Forty-eight percent earned general education math credits.
- Forty-eight percent of graduates with Level 1 SBA math scores earned college-level math credits; over 90 percent of those with Level 3 or 4 SBA math scores earned college-level credits.
- As expected, pre-college course taking was highest for graduates with lower SBA math scores – ranging from 68 percent for those with Level 1 scores to 18 percent for those at Level 3. Only 4 percent of graduates scoring at Level 4 earned pre-college math credits.
- Except for graduates with Level 4 SBA scores, more students earned general math credits than STEM math credits.

Table 13 shows the counts of students earning postsecondary math credit in 2018 by SBA Math assessment level for those whose first high school-level mathematics course was Algebra 2.

Table 13: First high school-level course Algebra 2

| SBA Assessment Category | All Graduates | Enrolled Postsecondary 2018* | Earned Postsecondary Math Credit | Postsecondary Math Course Type | | | |
|-------------------------|---------------|------------------------------|----------------------------------|--------------------------------|---------------|---------------|------------|
| | | | | Pre-College | College-Level | College Level | |
| | | | | | | STEM | General |
| All levels | 6,535 | 3,485 | 2,363 | 271 11% | 2,284 94% | 1,730 71% | 917 38% |
| No SBA | 3,093 | 1,596 | 1,059 | 95 9% | 1,036 95% | 825 76% | 370 34% |
| Level 1 | 277 | 117 | 67 | 34 45% | 50 67% | 23 31% | 35 47% |
| Level 2 | 510 | 268 | 163 | 65 38% | 141 82% | 61 35% | 94 54% |
| Level 3 | 1,000 | 574 | 398 | 61 15% | 383 93% | 236 57% | 226 55% |
| Level 4 | 1,655 | 930 | 676 | 16 2% | 674 99% | 585 86% | 192 28% |

* "Enrolled" here means enrolled in Washington public postsecondary institutions. Students who enroll in independent or out-of-state institutions are not included in this count.

For 2017 high school graduates whose first high school-level course was Algebra 2 and who earned mathematics credits in public postsecondary institutions in 2018:

- Overall, 94 percent of graduates earned college-level math credits in 2018. Seventy-one percent earned STEM math credits. Thirty-eight percent earned general education math credits.
- Sixty-seven percent of graduates with Level 1 SBA math scores earned college-level math credits; 99 percent of those with Level 4 SBA math scores earned college-level credits.
- As expected, pre-college course taking was highest for graduates with lower SBA math scores – ranging from 45 percent for those with Level 1 scores to 15 percent for those at Level 3. Only 2 percent of graduates scoring at Level 4 earned pre-college math credits.
- More graduates with Levels 1 and 2 SBA scores earned general math credits in college than STEM math; more graduates with Levels 3 and 4 math SBA scores completed STEM math than general education math.

Table 14 shows the counts of students earning postsecondary math credit in 2018 by SBA Math assessment level for students who earned credit for a math course in 12th grade.

Table 14: Math course in 12th grade

| SBA Assessment Category | All Graduates | Enrolled Postsecondary 2018* | Earned Postsecondary Math Credit | Postsecondary Math Course Type | | | |
|-------------------------|---------------|------------------------------|----------------------------------|--------------------------------|---------------|---------------|--------------|
| | | | | Pre-College | College-Level | College Level | |
| | | | | | | STEM | General |
| All levels | 36,713 | 17,621 | 12,703 | 4,482 35% | 9,635 76% | 5,653 45% | 5,528 44% |
| No SBA | 12,264 | 5,764 | 4,094 | 1,188 29% | 3,309 81% | 2,128 52% | 1,748 43% |
| Level 1 | 7,322 | 2,594 | 1,822 | 1,392 76% | 700 38% | 206 11% | 556 31% |
| Level 2 | 6,950 | 3,466 | 2,473 | 1,326 54% | 1,620 66% | 594 24% | 1,230 50% |
| Level 3 | 6,036 | 3,431 | 2,524 | 504 20% | 2,255 89% | 1,257 50% | 1,420 56% |
| Level 4 | 4,141 | 2,366 | 1,790 | 72 4% | 1,751 98% | 1,468 82% | 574 32% |

* "Enrolled" here means enrolled in Washington public postsecondary institutions. Students who enroll in independent or out-of-state institutions are not included in this count.

For 2017 high school graduates who completed a mathematics course in 12th grade and who earned mathematics credits in public postsecondary institutions in 2018:

- Overall, 76 percent of graduates earned college-level math credits in 2018. Forty-five percent earned STEM math credits. Forty-four percent earned general education math credits.
- Thirty-eight percent of graduates with Level 1 SBA math scores earned college-level math credits; 98 percent of those with Level 4 SBA math scores earned college-level credits.
- As expected, pre-college course-taking was highest for graduates with lower SBA math scores – ranging from 76 percent for those with Level 1 scores to 20 percent for those at Level 3. Only 4 percent of graduates scoring at Level 4 earned pre-college math credits.
- Except for graduates with Level 4 SBA scores, more students earned general education math credits than STEM math credits.

Table 15 shows the counts of students earning postsecondary math credit in 2018 by SBA Math assessment level for students who did not earn credit for a math course in 12th grade.

Table 15: No math course in 12th grade

| SBA Assessment Category | All Graduates | Enrolled Postsecondary 2018* | Earned Postsecondary Math Credit | Postsecondary Math Course Type | | | |
|-------------------------|---------------|------------------------------|----------------------------------|--------------------------------|---------------|---------------|--------------|
| | | | | Pre-College | College-Level | College Level | |
| | | | | | | STEM | General |
| All levels | 28,778 | 12,785 | 8,122 | 3,098 38% | 5,964 73% | 3,071 38% | 3,726 46% |
| No SBA | 11,502 | 5,375 | 3,265 | 1,058 32% | 2,518 77% | 1,403 43% | 1,499 46% |
| Level 1 | 5,639 | 1,735 | 1,133 | 844 74% | 455 40% | 99 9% | 378 33% |
| Level 2 | 5,345 | 2,330 | 1,475 | 801 54% | 946 64% | 326 22% | 717 49% |
| Level 3 | 4,192 | 2,168 | 1,420 | 346 24% | 1,240 87% | 625 44% | 813 57% |
| Level 4 | 2,100 | 1,177 | 829 | 49 6% | 805 97% | 618 75% | 319 38% |

* "Enrolled" here means enrolled in Washington public postsecondary institutions. Students who enroll in independent or out-of-state institutions are not included in this count.

For 2017 high school graduates who did not complete a mathematics course in 12th grade and who earned mathematics credits in public postsecondary institutions in 2018:

- Compared with those who took a 12th grade math course, graduates who did not complete pre-college math courses at slightly higher rates and college-level courses at slightly lower rates.
- Overall, 73 percent of graduates earned college-level math credits in 2018. Thirty-eight percent earned STEM math credits. Forty-six percent earned general education math credits.
- Seventy-four percent of graduates with Level 1 SBA math scores earned college-level math credits; 97 percent of those with Level 4 SBA math scores earned college-level credits.
- As expected, pre-college course-taking was highest for graduates with lower SBA math scores – ranging from 74 percent for those with Level 1 scores to 24 percent for those at Level 3. Only 6 percent of graduates scoring at Level 4 earned pre-college math credits.
- Except for graduates with Level 4 SBA scores, more students earned general education math credits than STEM math credits.

4. Groupings by student characteristics

Table 16 shows the counts of students earning postsecondary math credit in 2018 by SBA Math assessment level for students with low-income status.

Table 16: Low-Income Graduates

| SBA Assessment Category | Graduates in this category | Enrolled Postsecondary 2018* | Earned Postsecondary Math Credit | Postsecondary Math Course Type | | | |
|-------------------------|----------------------------|------------------------------|----------------------------------|--------------------------------|---------------|---------------|--------------|
| | | | | Pre-College | College-Level | College Level | |
| | | | | | | STEM | General |
| All levels | 30,047 | 12,493 | 8,550 | 4,017 47% | 5,588 65% | 2,771 32% | 3,660 43% |
| No SBA | 9,157 | 3,884 | 2,578 | 1,074 42% | 1,796 70% | 989 38% | 1,107 43% |
| Level 1 | 8,663 | 2,638 | 1,825 | 1,442 79% | 627 34% | 150 8% | 519 28% |
| Level 2 | 6,557 | 2,869 | 1,941 | 1,094 56% | 1,196 62% | 413 21% | 912 47% |
| Level 3 | 4,106 | 2,154 | 1,501 | 357 24% | 1,292 86% | 677 45% | 845 56% |
| Level 4 | 1,564 | 948 | 705 | 50 7% | 677 96% | 542 77% | 277 39% |

* "Enrolled" here means enrolled in Washington public postsecondary institutions. Students who enroll in independent or out-of-state institutions are not included in this count.

For 2017 low-income high school graduates who earned mathematics credits in public postsecondary institutions in 2018:

- Overall, 65 percent of graduates earned college-level math credits in 2018. Thirty-two percent earned STEM math credits. Forty-three percent earned general education math credits.
- Thirty-four percent of graduates with Level 1 SBA math scores earned college-level math credits; 96 percent of those with Level 4 SBA math scores earned college-level credits.
- As expected, pre-college course-taking was highest for graduates with lower SBA math scores – ranging from 79 percent for those with Level 1 scores to 24 percent for those at Level 3. Only 7 percent of graduates scoring at Level 4 earned pre-college math credits.
- Except for graduates with Level 4 SBA scores, more students earned general education math credits than STEM math credits.

Table 17 shows the counts of students earning postsecondary math credit in 2018 by SBA Math assessment level for students classified as non-low income.

Table 17: Non-low income graduates

| SBA Assessment Category | All Graduates | Enrolled Postsecondary 2018* | Earned Postsecondary Math Credit | Postsecondary Math Course Type | | | |
|-------------------------|---------------|------------------------------|----------------------------------|--------------------------------|---------------|---------------|--------------|
| | | | | Pre-College | College-Level | College Level | |
| | | | | | | STEM | General |
| All levels | 35,444 | 17,913 | 12,275 | 3,563 29% | 10,011 82% | 5,953 48% | 5,594 46% |
| No SBA | 14,609 | 7,255 | 4,781 | 1,172 25% | 4,031 84% | 2,542 53% | 2,140 45% |
| Level 1 | 4,298 | 1,691 | 1,130 | 794 70% | 528 47% | 155 14% | 415 37% |
| Level 2 | 5,738 | 2,927 | 2,007 | 1,033 51% | 1,370 68% | 507 25% | 1,035 52% |
| Level 3 | 6,122 | 3,445 | 2,443 | 493 20% | 2,203 90% | 1,205 49% | 1,388 57% |
| Level 4 | 4,677 | 2,595 | 1,914 | 71 4% | 1,879 98% | 1,544 81% | 616 32% |

* "Enrolled" here means enrolled in Washington public postsecondary institutions. Students who enroll in independent or out-of-state institutions are not included in this count.

For 2017 non-low income high school graduates who earned mathematics credits in public postsecondary institutions in 2018:

- Compared with low-income students, non-low income graduates completed pre-college math courses at higher rates and college-level courses at lower rates.
- Overall, 82 percent of graduates earned college-level math credits in 2018. Forty-eight percent earned STEM math credits. Forty-six percent earned general education math credits.
- Forty-seven percent of graduates with Level 1 SBA math scores earned college-level math credits; 98 percent of those with Level 4 SBA math scores earned college-level credits.
- As expected, pre-college course-taking was highest for graduates with lower SBA math scores – ranging from 70 percent for those with Level 1 scores to 20 percent for those at Level 3. Only 4 percent of graduates scoring at Level 4 earned pre-college math credits.
- Except for graduates with Level 4 SBA scores, more students earned general education math credits than STEM math credits.

5. Combination timing and student characteristics

Table 18 shows the counts of female students earning postsecondary math credit in 2018 by SBA Math assessment level for students whose first high school level course was Algebra 1.

Table 18: Female students, first high school-level course Algebra 1

| SBA Assessment Category | All Graduates | Enrolled Postsecondary 2018* | Earned Postsecondary Math Credit | Postsecondary Math Course Type | | | |
|-------------------------|---------------|------------------------------|----------------------------------|--------------------------------|---------------|--------------------|-----------------------|
| | | | | Pre-College | College-Level | College Level STEM | College Level General |
| All levels | 14,293 | 6,715 | 4,559 | 2,683 57% | 2,747 58% | 875 19% | 2,188 47% |
| No SBA | 4,478 | 2,038 | 1,303 | 707 53% | 816 61% | 279 21% | 633 48% |
| Level 1 | 4,222 | 1,698 | 1,196 | 999 79% | 468 37% | 90 7% | 407 32% |
| Level 2 | 3,714 | 1,931 | 1,328 | 781 58% | 830 61% | 225 17% | 693 51% |
| Level 3 | 1,658 | 922 | 645 | 180 27% | 552 84% | 227 34% | 411 62% |
| Level 4 | 221 | 126 | 87 | 16 18% | 81 89% | 54 59% | 44 48% |

* "Enrolled" here means enrolled in Washington public postsecondary institutions. Students who enroll in independent or out-of-state institutions are not included in this count.

For 2017 female high school graduates whose first high school-level course was Algebra 1 and who earned mathematics credits in public postsecondary institutions in 2018:

- Overall, 58 percent of graduates earned college-level math credits in 2018. Nineteen percent earned STEM math credits. Forty-seven percent earned general education math credits.
- Seventy-nine percent of graduates with Level 1 SBA math scores earned college-level math credits; 89 percent of those with Level 4 SBA math scores earned college-level credits.
- As expected, pre-college course taking was highest for graduates with lower SBA math scores – ranging from 79 percent for those with Level 1 scores to 18 percent for those at Level 3.
- Except for graduates with Level 4 SBA scores, more students earned general education math credits than STEM math credits.

Table 19 shows the counts of male students earning postsecondary math credit in 2018 by SBA Math assessment level for students whose first high school level course was Algebra 1.

Table 19: Male students, first high school–level course Algebra 1

| SBA Assessment Category | All Graduates | Enrolled Postsecondary 2018* | Earned Postsecondary Math Credit | Postsecondary Math Course Type | | | |
|-------------------------|---------------|------------------------------|----------------------------------|--------------------------------|---------------|---------------|--------------|
| | | | | Pre-College | College-Level | College Level | |
| | | | | | | STEM | General |
| All levels | 13,996 | 5,260 | 3,796 | 2,114 54% | 2,406 61% | 1,171 30% | 1,609 41% |
| No SBA | 3,993 | 1,550 | 1,109 | 588 52% | 728 64% | 391 34% | 472 41% |
| Level 1 | 4,206 | 1,171 | 822 | 674 77% | 318 36% | 96 11% | 248 28% |
| Level 2 | 3567 | 1,417 | 1,004 | 624 61% | 608 59% | 244 24% | 443 43% |
| Level 3 | 1,826 | 910 | 686 | 203 29% | 581 84% | 303 44% | 373 54% |
| Level 4 | 404 | 212 | 175 | 25 14% | 171 94% | 137 75% | 73 40% |

* "Enrolled" here means enrolled in Washington public postsecondary institutions. Students who enroll in independent or out-of-state institutions are not included in this count.

For 2017 male high school graduates whose first high school–level course was Algebra 1 and who earned mathematics credits in public postsecondary institutions in 2018:

- Compared with female graduates, male graduates completed STEM math courses at higher rates.
- Overall, 61 percent of graduates earned college-level math credits in 2018. Thirty percent earned STEM math credits. Forty-one percent earned general education math credits.
- Thirty-six percent of graduates with Level 1 SBA math scores earned college-level math credits; 94 percent of those with Level 4 SBA math scores earned college-level credits.
- As expected, pre-college course taking was highest for graduates with lower SBA math scores – ranging from 77 percent for those with Level 1 scores to 14 percent for those at Level 4.
- Except for graduates with Level 4 SBA scores, more students earned general education math credits than STEM math credits.

Table 20 shows the counts of female students earning postsecondary math credit in 2018 by SBA Math assessment level for students whose first high school level course was Geometry.

Table 20: Female students, first high school-level course Geometry

| SBA Assessment Category | All Graduates | Enrolled Postsecondary 2018* | Earned Postsecondary Math Credit | Postsecondary Math Course Type | | | |
|-------------------------|---------------|------------------------------|----------------------------------|--------------------------------|---------------|---------------|--------------|
| | | | | Pre-College | College-Level | College Level | |
| | | | | | | STEM | General |
| All levels | 10,966 | 6,110 | 3,845 | 987 25% | 3,287 84% | 1,723 44% | 2,069 53% |
| No SBA | 4,565 | 2,474 | 1,491 | 317 21% | 1,323 87% | 740 49% | 802 53% |
| Level 1 | 866 | 388 | 248 | 178 67% | 121 46% | 29 11% | 99 37% |
| Level 2 | 1,697 | 965 | 627 | 297 47% | 453 71% | 159 25% | 346 54% |
| Level 3 | 2,533 | 1,525 | 982 | 182 18% | 899 91% | 442 45% | 602 61% |
| Level 4 | 1,305 | 758 | 497 | 13 3% | 491 99% | 353 71% | 220 44% |

* "Enrolled" here means enrolled in Washington public postsecondary institutions. Students who enroll in independent or out-of-state institutions are not included in this count.

For 2017 female high school graduates whose first high school-level course was Geometry and who earned mathematics credits in public postsecondary institutions in 2018:

- Compared with female graduates whose first high school level course was Algebra 1, female graduates who started high school math with Geometry had lower pre-college rates and higher college-level course-taking rates in both STEM math courses and general education math.
- Overall, 84 percent of graduates earned college-level math credits in 2018. Forty-four percent earned STEM math credits. Fifty-three percent earned general education math credits.
- Forty-six percent of graduates with Level 1 SBA math scores earned college-level math credits; 99 percent of those with Level 4 SBA math scores earned college-level credits.
- As expected, pre-college course taking was highest for graduates with lower SBA math scores – ranging from 67 percent for those with Level 1 scores to 18 percent for those at Level 3. Only 3 percent of graduates scoring at Level 4 earned pre-college math credits.
- Except for graduates with Level 4 SBA scores, more students earned general education math credits than STEM math credits.

Table 21 shows the counts of male students earning postsecondary math credit in 2018 by SBA Math assessment level for students whose first high school level course was Geometry.

Table 21: Male students, first high school–level course Geometry

| SBA Assessment Category | All Graduates | Enrolled Postsecondary 2018* | Earned Postsecondary Math Credit | Postsecondary Math Course Type | | | |
|-------------------------|---------------|------------------------------|----------------------------------|--------------------------------|---------------|---------------|--------------|
| | | | | Pre-College | College-Level | College Level | |
| | | | | | | STEM | General |
| All levels | 9,935 | 5,160 | 3,816 | 841 22% | 3,347 87% | 2,281 59% | 1,682 44% |
| No SBA | 3,579 | 1,842 | 1,327 | 243 18% | 1,190 89% | 853 64% | 577 43% |
| Level 1 | 905 | 331 | 220 | 157 68% | 115 50% | 49 21% | 74 32% |
| Level 2 | 1,524 | 736 | 523 | 233 44% | 390 74% | 179 34% | 266 50% |
| Level 3 | 2,190 | 1,232 | 938 | 171 18% | 859 91% | 543 57% | 491 52% |
| Level 4 | 1,737 | 1,019 | 808 | 37 5% | 793 98% | 657 81% | 274 34% |

* "Enrolled" here means enrolled in Washington public postsecondary institutions. Students who enroll in independent or out-of-state institutions are not included in this count.

For 2017 male high school graduates whose first high school–level course was Geometry and who earned mathematics credits in public postsecondary institutions in 2018:

- Compared with male graduates whose first high school level course was Algebra 1, male graduates who started high school math with Geometry had lower pre-college rates and higher college-level course-taking rates in STEM math. Except for graduates with Level 4 SBA math assessments, the male graduates who started with Geometry also had higher college-level course-taking rates in general education math.
- Compared with female graduates, male graduates completed STEM math courses at higher rates.
- Overall, 87 percent of graduates earned college-level math credits in 2018. Fifty-nine percent earned STEM math credits. Forty-four percent earned general education math credits.
- Sixty-eight percent of graduates with Level 1 SBA math scores earned college-level math credits; 98 percent of those with Level 4 SBA math scores earned college-level credits.
- As expected, pre-college course taking was highest for graduates with lower SBA math scores – ranging from 68 percent for those with Level 1 scores to 18 percent for those at Level 3. Only 5 percent of graduates scoring at Level 4 earned pre-college math credits.
- Except for graduates with Level 4 SBA scores, more students earned general education math credits than STEM math credits.

Conclusion and Suggestions for Future Work

Overall, and in many of the high school course-taking categories, high college-level course-taking rates and low pre-college course-taking rates were associated with high SBA math assessment scores.

The rates vary by the math course-taking experiences of the students and by student characteristics. Students who took AP math courses or two or more courses beyond Geometry had relatively low pre-college course-taking rates and high college-level course-taking rates compared with other categories that didn't necessarily include advanced high school math courses.

There were noteworthy differences between female and male college course-taking by SBA math assessment level, and there were also differences between low-income and non-low income students.

This analysis can serve as a benchmark for comparisons with future high school graduation classes that are subject to different graduation requirements.

Other future work involving course-level mathematics transitions analysis might include:

- Incorporation of Running Start, College in the High School participation into the outcomes analysis.
- Analysis of students who earn math credit in Career Technical Education (CTE) courses.
- Incorporation of letter grades received in high school courses into the analysis.
- Specific examination of articulations between high schools and community and technical colleges regionally.
- Examination of high school-to-postsecondary math outcomes across race and ethnic groups.

Appendix A: High School Mathematics: OSPI Categories and Related State Course Codes

Course descriptions shown here are from the 2018 CEDARS Manual.¹⁶

| State Course Code | Name | Description |
|-------------------|------------------|---|
| Algebra 1 | | |
| 02052 | Algebra I | Algebra I courses include the study of properties and operations of the real number system; evaluating rational algebraic expressions; solving and graphing first-degree equations and inequalities; translating word problems into equations; operations with and factoring of polynomials; and solving simple quadratic equations. |
| 02053 | Algebra I—Part 1 | The first part in a multipart sequence of Algebra I. This course generally covers the same topics as the first semester of Algebra I, including the study of properties of rational numbers (i.e., number theory), ratio, proportion, and estimation, exponents and radicals, the rectangular coordinate system, sets and logic, formulas, and solving first-degree equations and inequalities. |
| 02054 | Algebra I—Part 2 | The second part in a multipart sequence of Algebra I. This course generally covers the same topics as the second semester of Algebra I, including the study of properties of the real number system and operations, evaluating rational algebraic expressions, solving and graphing first-degree equations and inequalities, translating word problems into equations, operations with and factoring of polynomials, and solving simple quadratics. |

¹⁶ CEDARS manuals are available on the OSPI website at <https://www.k12.wa.us/data-reporting/reporting/cedars>.

| State Course Code | Name | Description |
|-------------------|------------------------------|--|
| 02055 | Transition Algebra | Transition Algebra courses review and extend algebra and geometry concepts for students who have already taken Algebra I and Geometry. Transition Algebra courses include a review of such topics as properties and operations of real numbers; evaluation of rational algebraic expressions; solutions and graphs of first-degree equations and inequalities; translation of word problems into equations; operations with and factoring of polynomials; simple quadratics; properties of plane and solid figures; rules of congruence and similarity; coordinate geometry including lines, segments, and circles in the coordinate plane; and angle measurement in triangles including trigonometric ratios. |
| 02058 | Particular Topics in Algebra | These courses examine a specific topic in algebra, such as linear equations or rational numbers, rather than provide an overview of algebra concepts. |
| 02059 | | |
| 02069 | Algebra—Other | Other Algebra courses. |

Algebra 2

| | | |
|-------|--------------|---|
| 02056 | Algebra II | Algebra II course topics typically include field properties and theorems; set theory; operations with rational and irrational expressions; factoring of rational expressions; in-depth study of linear equations and inequalities; quadratic equations; solving systems of linear and quadratic equations; graphing of constant, linear, and quadratic equations; properties of higher-degree equations; and operations with rational and irrational exponents. |
| 02103 | Trigonometry | Trigonometry courses prepare students for eventual work in calculus and typically include the following topics: trigonometric and circular functions; their inverses and graphs; relations among the parts of a triangle; trigonometric identities and equations; solutions of right and oblique triangles; and complex numbers. |

AP Calculus +

| | | |
|-------|-----------------------|--|
| 02122 | Multivariate Calculus | Multivariate Calculus courses include the study of hyperbolic functions, improper integrals, directional derivatives, and multiple integration and its applications. |
|-------|-----------------------|--|

| State Course Code | Name | Description |
|-------------------|-----------------------|---|
| 02123 | Differential Calculus | Differential Calculus courses include the study of elementary differential equations including first- and higher-order differential equations, partial differential equations, linear equations, systems of linear equations, transformations, series solutions, numerical methods, boundary value problems, and existence theorems. |
| 02124 | AP Calculus AB | Following the College Board's suggested curriculum designed to parallel college-level calculus courses, AP Calculus AB provides students with an understanding of the concepts of calculus and experience with its methods and applications. These courses introduce calculus and include the following topics: functions, graphs, limits, and continuity; differential calculus (including definition, application, and computation of the derivative; derivative at a point; derivative as a function; and second derivatives); and integral calculus (including definite integrals and antidifferentiation). |
| 02125 | AP Calculus BC | Following the College Board's suggested curriculum designed to parallel college-level calculus courses, AP Calculus BC courses provide students with an understanding of the concepts of calculus and experience with its methods and applications. These courses cover all of the calculus topics in AP Calculus AB as well as the following topics: parametric, polar, and vector functions; applications of integrals; and polynomial approximations and series, including series of constants and Taylor series. See SCED Code 02124 for more details. |

AP Statistics

| | | |
|-------|---------------|--|
| 02203 | AP Statistics | Following the College Board's suggested curriculum designed to parallel college-level statistics courses, AP Statistics courses introduce students to the major concepts and tools for collecting, analyzing, and drawing conclusions from data. Students are exposed to four broad conceptual themes: exploring data, sampling and experimentation, anticipating patterns, and statistical inference. |
|-------|---------------|--|

| State Course Code | Name | Description |
|-------------------|------------------------------------|--|
| Applied | | |
| 02151 | General Applied Mathematics | General Applied Mathematics courses reinforce general mathematics skills; extend these skills to include some pre-algebra and algebra topics; and use these skills in a variety of practical, consumer, business, and occupational applications. Course topics typically include rational numbers, measurement, basic statistics, ratio and proportion, basic geometry, formulas, and simple equations. |
| 02152 | Occupationally Applied Mathematics | Occupationally Applied Mathematics courses reinforce general mathematics skills, extend these skills to include some pre-algebra and algebra topics, and use these skills primarily in occupational applications. Course topics typically include rational numbers, measurement, basic statistics, ratio and proportion, basic geometry, formulas, and simple equations. |
| 02153 | Technical Mathematics | Technical Mathematics courses extend students' proficiency in mathematics, and often apply these skills to technical and/or industrial situations and problems. Technical Mathematics topics may include but are not limited to rational numbers; systems of measurements; tolerances; numerical languages; geometry; algebra; statistics; and using tables, graphs, charts, and other data displays. Technology is integrated as appropriate. |
| 02998 | Mathematics—Workplace Experience | Mathematics—Workplace Experience courses provide students with work experience in a field related to mathematics. Goals are typically set cooperatively by the student, teacher, and employer (although students are not necessarily paid). These courses may include classroom activities as well, involving further study of the field or discussion regarding experiences that students encounter in the workplace. |
| Bridge | | |
| 02099 | Bridge to College Mathematics | |
| WA0003 | Bridge to College Mathematics | |

| State Course Code | Name | Description |
|--------------------------|-----------------------------------|---|
| Business/Computer | | |
| 02154 | Business Mathematics | Business Mathematics courses reinforce general mathematics skills, emphasize speed and accuracy in computations, and use these skills in a variety of business applications. Business Mathematics courses reinforce general mathematics topics (e.g., arithmetic, measurement, statistics, ratio and proportion, exponents, formulas, and simple equations) by applying these skills to business problems and situations. Applications might include wages, hourly rates, payroll deductions, sales, receipts, accounts payable and receivable, financial reports, discounts, and interest. |
| 02155 | Business Mathematics with Algebra | Business Mathematics with Algebra courses teach and have students apply algebra concepts to a variety of business and financial situations. Applications usually include income, insurance, credit, banking, taxation, stocks and bonds, and finance. |
| 02156 | Computer Mathematics with Algebra | Intended for students who have attained the objectives of Algebra I, Computer Mathematics with Algebra courses include a study of computer systems and programming, and use the computer to solve mathematics problems. |
| 02157 | Consumer Mathematics | Consumer Mathematics courses reinforce general mathematics topics (such as arithmetic using rational numbers, measurement, ratio and proportion, and basic statistics) and apply these skills to consumer problems and situations. Applications typically include budgeting, taxation, credit, banking services, insurance, buying and selling products and services, home and/or car ownership and rental, managing personal income, and investment. |
| Calculus | | |
| 02121 | Calculus | Calculus courses include the study of derivatives, differentiation, integration, the definite and indefinite integral, and applications of calculus. Typically, students have previously attained knowledge of pre-calculus topics (some combination of trigonometry, elementary functions, analytic geometry, and mathematic analysis). |

| State Course Code | Name | Description |
|-------------------|-------------------------------|---|
| 02126 | Particular Topics in Calculus | These courses examine specific topics in calculus (such as integral calculus, special functions or series, or the applications of calculus to mathematical modeling), rather than provide a general overview of calculus. |

Geometry

| | | |
|-------|-------------------------------|---|
| 02071 | Informal Geometry | Informal Geometry courses emphasize a practical approach to the study of geometry and deemphasize an abstract, formal approach. Topics typically include properties of and work with plane and solid figures; inductive methods of reasoning and use of logic; concepts of congruence, similarity, parallelism, perpendicularity, and proportion; and rules of angle measurement in triangles. |
| 02072 | Geometry | Geometry courses, emphasizing an abstract, formal approach to the study of geometry, typically include topics such as properties of plane and solid figures; deductive methods of reasoning and use of logic; geometry as an axiomatic system including the study of postulates, theorems, and formal proofs; concepts of congruence, similarity, parallelism, perpendicularity, and proportion; and rules of angle measurement in triangles. |
| 02075 | Particular Topics in Geometry | These courses examine specific topics in geometry, such as solid or technical geometry, rather than provide a general study of the field of geometry. |
| 02079 | Geometry—Other | Other Geometry courses. |

High Integrated/Multiple

| | | |
|-------|----------------------------|---|
| 02063 | Integrated Mathematics II | Integrated Mathematics II courses emphasize proficiency in skills involving numbers and operations, algebra, geometry, statistics, and probability. These courses are offered as the second course in a 3- or 4-year sequence of college-preparatory mathematics courses that replace traditional Algebra 1, Geometry, and Algebra 2 courses. |
| 02064 | Integrated Mathematics III | Integrated Mathematics III courses emphasize proficiency in skills involving numbers and operations, algebra, geometry, statistics, and probability. These courses are offered as the third course in a 3- or 4-year sequence of college-preparatory mathematics courses that replace traditional Algebra 1, Geometry, and Algebra 2 courses. |

| State Course Code | Name | Description |
|-------------------|----------------------------------|---|
| 02105 | Trigonometry/Mathematic Analysis | Covering topics of both Trigonometry and Mathematic Analysis, these courses prepare students for eventual work in calculus. Topics typically include the study of right trigonometric and circular functions, inverses, and graphs; trigonometric identities and equations; solutions of right and oblique triangles; complex numbers; numerical tables; polynomial, logarithmic, exponential, and rational functions and their graphs; vectors; set theory; Boolean algebra and symbolic logic; mathematical induction; matrix algebra; sequences and series; and limits and continuity. |
| 02106 | Trigonometry/Algebra | Trigonometry/Algebra courses combine trigonometry and advanced algebra topics, and are usually intended for students who have attained Algebra I and Geometry objectives. Topics typically include right trigonometric and circular functions, inverses, and graphs; trigonometric identities and equations; solutions of right and oblique triangles; complex numbers; numerical tables; field properties and theorems; set theory; operations with rational and irrational expressions; factoring of rational expressions; in-depth study of linear equations and inequalities; quadratic equations; solving systems of linear and quadratic equations; graphing of constant, linear, and quadratic equations; and properties of higher-degree equations. |
| 02107 | Trigonometry/Analytic Geometry | Covering topics of both Trigonometry and Analytic Geometry, these courses prepare students for eventual work in calculus. Topics typically include the study of right trigonometric and circular functions, inverses, and graphs; trigonometric identities and equations; solutions of right and oblique triangles; complex numbers; numerical tables; vectors; the polar coordinate system; equations and graphs of conic sections; rotations and transformations; and parametric equations. |

| State Course Code | Name | Description |
|----------------------------|---------------------------|--|
| IB Math | | |
| 02131 | IB Mathematical Studies | IB Mathematical Studies courses prepare students to take the International Baccalaureate Mathematical Studies exam at the standard level. Intended to provide students with the skills to cope with the mathematical demands of a technological society, course topics include linear, quadratic, and exponential functions, solutions, and graphs; descriptive statistics; statistical applications; data analysis, including collection, calculation, and presentation of data; set operations, logic, and probability; geometry and trigonometry; mathematical models; and introduction to differential calculus. |
| 02132 | IB Mathematics | IB Mathematics courses prepare students to take the International Baccalaureate Mathematics exams at the standard or higher level. Topics include operations and properties of number sets; trigonometric functions, equations, and graphs; algebra and coordinate geometry; simultaneous linear equations; polynomial and quadratic functions and equations; calculus, including bilinear, exponential and logarithmic functions; two dimensional vectors; and statistics and probability. Advanced content may include discrete mathematics; sets, relations, and groups; or additional calculus topics. |
| 02134 | IB Further Mathematics—HL | IB Further Mathematics—HL courses prepare students to take the International Baccalaureate Further Mathematics at the higher level. Designed to advance students' knowledge of IB Mathematics—HL, course topics include linear algebra; geometry; statistics and probability; sets, relations and groups; calculus; and discrete mathematics. This course was previously offered at the standard level, but is now offered as a higher-level course. |
| Integrated/Multiple | | |
| 02061 | Integrated Math | |
| 02062 | Integrated Mathematics I | Integrated Mathematics I courses emphasize proficiency in skills involving numbers and operations, algebra, geometry, statistics, and probability. These courses are offered as the first course in a 3- or 4-year sequence of |

| State Course Code | Name | Description |
|-------------------|------------------------------------|---|
| | | college-preparatory mathematics courses that replace traditional Algebra 1, Geometry, and Algebra 2 courses. |
| 02074 | Principles of Algebra and Geometry | Principles of Algebra and Geometry courses combine the study of some pre-algebra and algebra topics with introductory geometry topics. These courses include the study of formulas, algebraic expressions, first-degree equations and inequalities, the rectangular coordinate system, area, perimeter, and volume of geometric figures, and properties of triangles and circles. |

Post Algebra 2

| | | |
|-------|----------------------|--|
| 02057 | Algebra III | Algebra III courses review and extend algebraic concepts for students who have already taken Algebra II. Course topics include (but are not limited to) operations with rational and irrational expressions, factoring of rational expressions, linear equations and inequalities, quadratic equations, solving systems of linear and quadratic equations, properties of higher-degree equations, and operations with rational and irrational exponents. The courses may introduce topics in discrete mathematics, elementary probability and statistics; matrices and determinants; and sequences and series. |
| 02073 | Analytic Geometry | Analytic Geometry courses include the study of the nature and intersection of lines and planes in space, including vectors, the polar coordinate system, equations and graphs of conic sections, rotations and transformations, and parametric equations. |
| 02102 | Discrete Mathematics | Discrete Mathematics courses include the study of topics such as number theory, discrete probability, set theory, symbolic logic, Boolean algebra, combinatorics, recursion, basic algebraic structures and graph theory. |
| 02104 | Mathematic Analysis | Mathematic Analysis courses include the study of polynomial, logarithmic, exponential, and rational functions and their graphs; vectors; set theory; Boolean algebra and symbolic logic; mathematical induction; matrix algebra; sequences and series; and limits and continuity. They may also include some study of trigonometry and/or pre-calculus topics. |

| State Course Code | Name | Description |
|-------------------|---------------------------------------|---|
| 02108 | Mathematic Analysis/Analytic Geometry | Covering topics from both Mathematic Analysis and Analytic Geometry, these courses prepare students for eventual work in calculus. Topics include the study of polynomial, logarithmic, exponential, and rational functions and their graphs; vectors; set theory; Boolean algebra and symbolic logic; mathematical induction; matrix algebra; sequences and series; and limits and continuity; the polar coordinate system; equations and graphs of conic sections; rotations and transformations; and parametric equations. |
| 02109 | Elementary Functions | Elementary Functions courses, while preparing students for eventual work in calculus, include the study of relations and functions, including polynomial, logarithmic, exponential, rational, right trigonometric, and circular functions, and their inverses, graphs, and applications. |
| 02110 | Pre-Calculus | Pre-Calculus courses combine the study of Trigonometry, Elementary Functions, Analytic Geometry, and Mathematic Analysis topics as preparation for calculus. Topics typically include the study of complex numbers; polynomial, logarithmic, exponential, rational, right trigonometric, and circular functions, and their relations, inverses and graphs; trigonometric identities and equations; solutions of right and oblique triangles; vectors; the polar coordinate system; conic sections; Boolean algebra and symbolic logic; mathematical induction; matrix algebra; sequences and series; and limits and continuity. |
| 02111 | Linear Algebra | Linear Algebra courses include a study of matrices, vectors, tensors, and linear transformations and are typically intended for students who have attained pre-calculus objectives. |
| 02113 | Abstract Algebra | Abstract Algebra courses include a study of the properties of the number system from an abstract perspective, including such topics as number fields (i.e., rational, real, and complex numbers), integral domains, rings, groups, polynomials, and the fundamental theorem of algebra. Abstract Algebra is typically geared towards students who have attained pre-calculus objectives. |
| 02149 | Analytic Mathematics—Other | Other Analytic Mathematics courses. |

| State Course Code | Name | Description |
|-------------------|---|--|
| Statistics | | |
| 02201 | Probability and Statistics | Probability and Statistics courses introduce the study of likely events and the analysis, interpretation, and presentation of quantitative data. Course topics generally include basic probability and statistics: discrete probability theory, odds and probabilities, probability trees, populations and samples, frequency tables, measures of central tendency, and presentation of data (including graphs). Course topics may also include normal distribution and measures of variability. |
| 02202 | Inferential Probability and Statistics | Probability and Statistics courses focus on descriptive statistics, with an introduction to inferential statistics. Topics typically include event probability, normal probability distribution, collection and description of data, frequency tables and graphs, measures of central tendency and variability, random variables, and random sampling. Course topics may also include covariance and correlation, central limit theorem, confidence intervals, and hypothesis testing. |
| 02204 | Particular Topics in Probability and Statistics | These courses examine particular topics in Probability and Statistics, such as regression or hierarchical linear modeling, rather than provide a general overview. |
| 02205 | Statistics | Statistics courses involve the major concepts and methods used to collect, analyze, and draw conclusions from data. Topics typically include populations and samples, measures of central tendency and variability, hypothesis testing, presentation, and making statistical inferences. |
| 02209 | Probability and Statistics—Other | Other Probability and Statistics courses |

Appendix B: Public Postsecondary Enrollment Rates and Mathematics Course-Taking Rates for High School Math Course-Taking Categories

Table B-1: High School Graduates

| SBA Assessment Category | Graduates | Enrolled Public Postsecondary 2018 | Public Postsecondary Enrollment Rate | Earned Postsecondary Math Credit | Math Course-Taking Rate* |
|-------------------------|-----------|------------------------------------|--------------------------------------|----------------------------------|--------------------------|
| All levels | 65,491 | 30,406 | 46% | 20,825 | 68% |
| No SBA | 23,766 | 11,139 | 47% | 7,359 | 66% |
| Level 1 | 12,961 | 4,329 | 33% | 2,955 | 68% |
| Level 2 | 12,295 | 5,796 | 47% | 3,948 | 68% |
| Level 3 | 10,228 | 5,599 | 55% | 3,944 | 70% |
| Level 4 | 6,241 | 3,543 | 57% | 2,619 | 74% |

*The Math Course-Taking Rate is the number of students earning credit pre-college or college-level mathematics relative to the number who earned credit in any math course.

Table B-2: Algebra 2 Credit

| SBA Assessment Category | Graduates | Enrolled Public Postsecondary 2018 | Public Postsecondary Enrollment Rate | Earned Postsecondary Math Credit | Math Course-Taking Rate* |
|-------------------------|-----------|------------------------------------|--------------------------------------|----------------------------------|--------------------------|
| All levels | 40,721 | 21,373 | 52% | 14,902 | 70% |
| No SBA | 14,439 | 7,497 | 52% | 5,033 | 67% |
| Level 1 | 5,615 | 2,459 | 44% | 1,734 | 71% |
| Level 2 | 8,124 | 4,187 | 52% | 2,921 | 70% |
| Level 3 | 7,773 | 4,461 | 57% | 3,185 | 71% |
| Level 4 | 4,770 | 2,769 | 58% | 2,029 | 73% |

*The Math Course-Taking Rate is the number of students earning credit pre-college or college-level mathematics relative to the number who earned credit in any math course.

Table B-3: No Algebra 2 Credit

| SBA Assessment Category | Graduates | Enrolled Public Postsecondary 2018 | Public Postsecondary Enrollment Rate | Earned Postsecondary Math Credit | Math Course-Taking Rate* |
|-------------------------|-----------|------------------------------------|--------------------------------------|----------------------------------|--------------------------|
| All levels | 24,770 | 9,033 | 36% | 5,923 | 66% |
| No SBA | 9,327 | 3,642 | 39% | 2,326 | 64% |
| Level 1 | 7,346 | 1,870 | 25% | 1,221 | 65% |
| Level 2 | 4,171 | 1,609 | 39% | 1,027 | 64% |
| Level 3 | 2,455 | 1,138 | 46% | 759 | 67% |
| Level 4 | 1,471 | 774 | 53% | 590 | 76% |

*The Math Course-Taking Rate is the number of students earning credit pre-college or college-level mathematics relative to the number who earned credit in any math course.

Table B-4: Two or more credits beyond Geometry

| SBA Assessment Category | Graduates | Enrolled Public Postsecondary 2018 | Public Postsecondary Enrollment Rate | Earned Postsecondary Math Credit | Math Course-Taking Rate* |
|-------------------------|-----------|------------------------------------|--------------------------------------|----------------------------------|--------------------------|
| All levels | 29,429 | 16,781 | 57% | 12,050 | 72% |
| No SBA | 10,352 | 5,658 | 55% | 3,956 | 70% |
| Level 1 | 2,363 | 1,246 | 53% | 901 | 72% |
| Level 2 | 4,859 | 2,865 | 59% | 2,044 | 71% |
| Level 3 | 6,597 | 3,952 | 60% | 2,865 | 72% |
| Level 4 | 5,258 | 3,060 | 58% | 2,284 | 75% |

*The Math Course-Taking Rate is the number of students earning credit pre-college or college-level mathematics relative to the number who earned credit in any math course.

Table B-5: Bridge to College Mathematics

| SBA Assessment Category | Graduates | Enrolled Public Postsecondary 2018 | Public Postsecondary Enrollment Rate | Earned Postsecondary Math Credit | Math Course-Taking Rate* |
|-------------------------|-----------|------------------------------------|--------------------------------------|----------------------------------|--------------------------|
| All levels | 1,499 | 725 | 48% | 541 | 75% |
| No SBA | 284 | 123 | 43% | 87 | 71% |
| Level 1 | 454 | 204 | 45% | 160 | 78% |
| Level 2 | 593 | 309 | 52% | 229 | 74% |
| Level 3 or 4 | 168 | 89 | 53% | 65 | 73% |

*The Math Course-Taking Rate is the number of students earning credit pre-college or college-level mathematics relative to the number who earned credit in any math course.

Table B-6: AP Calculus or AP Statistics

| SBA Assessment Category | Graduates | Enrolled Public Postsecondary 2018 | Public Postsecondary Enrollment Rate | Earned Postsecondary Math Credit | Math Course-Taking Rate* |
|-------------------------|-----------|------------------------------------|--------------------------------------|----------------------------------|--------------------------|
| All levels | 9,980 | 5,641 | 57% | 4,094 | 73% |
| No SBA | 3,904 | 2,020 | 52% | 1,436 | 71% |
| Level 1 | 248 | 162 | 65% | 113 | 70% |
| Level 2 | 739 | 487 | 66% | 332 | 68% |
| Level 3 | 2,026 | 1,233 | 61% | 904 | 73% |
| Level 4 | 3,063 | 1,739 | 57% | 1,309 | 75% |

*The Math Course-Taking Rate is the number of students earning credit pre-college or college-level mathematics relative to the number who earned credit in any math course.

Table B-7: First high school level course: Algebra 1

| SBA Assessment Category | Graduates | Enrolled Public Postsecondary 2018 | Public Postsecondary Enrollment Rate | Earned Postsecondary Math Credit | Math Course-Taking Rate* |
|-------------------------|-----------|------------------------------------|--------------------------------------|----------------------------------|--------------------------|
| All levels | 28,289 | 11,975 | 42% | 8,355 | 70% |
| No SBA | 8,471 | 3,588 | 42% | 2,412 | 67% |
| Level 1 | 8,428 | 2,869 | 34% | 2,018 | 70% |
| Level 2 | 7,281 | 3,348 | 46% | 2,332 | 70% |
| Level 3 | 3,484 | 1,832 | 53% | 1,331 | 73% |
| Level 4 | 625 | 338 | 54% | 262 | 78% |

*The Math Course-Taking Rate is the number of students earning credit pre-college or college-level mathematics relative to the number who earned credit in any math course.

Table B-8: First high school level course: Geometry

| SBA Assessment Category | Graduates | Enrolled Public Postsecondary 2018 | Public Postsecondary Enrollment Rate | Earned Postsecondary Math Credit | Math Course-Taking Rate* |
|-------------------------|-----------|------------------------------------|--------------------------------------|----------------------------------|--------------------------|
| All levels | 20,901 | 11,270 | 54% | 7,661 | 68% |
| No SBA | 8,144 | 4,316 | 53% | 2,818 | 65% |
| Level 1 | 1,771 | 719 | 41% | 468 | 65% |
| Level 2 | 3,221 | 1,701 | 53% | 1,150 | 68% |
| Level 3 | 4,723 | 2,757 | 58% | 1,920 | 70% |
| Level 4 | 3,042 | 1,777 | 58% | 1,305 | 73% |

*The Math Course-Taking Rate is the number of students earning credit pre-college or college-level mathematics relative to the number who earned credit in any math course.

Table B-9: First high school level course: Algebra 2

| SBA Assessment Category | Graduates | Enrolled Public Postsecondary 2018 | Public Postsecondary Enrollment Rate | Earned Postsecondary Math Credit | Math Course-Taking Rate* |
|-------------------------|-----------|------------------------------------|--------------------------------------|----------------------------------|--------------------------|
| All levels | 6,535 | 3,485 | 53% | 2,363 | 68% |
| No SBA | 3,093 | 1,596 | 52% | 1,059 | 66% |
| Level 1 | 277 | 117 | 42% | 67 | 57% |
| Level 2 | 510 | 268 | 53% | 163 | 61% |
| Level 3 | 1,000 | 574 | 57% | 398 | 69% |
| Level 4 | 1,655 | 930 | 56% | 676 | 73% |

*The Math Course-Taking Rate is the number of students earning credit pre-college or college-level mathematics relative to the number who earned credit in any math course.

Table B-10: Math course in 12th Grade

| SBA Assessment Category | Graduates | Enrolled Public Postsecondary 2018 | Public Postsecondary Enrollment Rate | Earned Postsecondary Math Credit | Math Course-Taking Rate* |
|-------------------------|-----------|------------------------------------|--------------------------------------|----------------------------------|--------------------------|
| All levels | 36,713 | 17,621 | 48% | 12,703 | 72% |
| No SBA | 12,264 | 5,764 | 47% | 4,094 | 71% |
| Level 1 | 7,322 | 2,594 | 35% | 1,822 | 70% |
| Level 2 | 6,950 | 3,466 | 50% | 2,473 | 71% |
| Level 3 | 6,036 | 3,431 | 57% | 2,524 | 74% |
| Level 4 | 4,141 | 2,366 | 57% | 1,790 | 76% |

*The Math Course-Taking Rate is the number of students earning credit pre-college or college-level mathematics relative to the number who earned credit in any math course.

Table B-11: No math course in 12th Grade

| SBA Assessment Category | Graduates | Enrolled Public Postsecondary 2018 | Public Postsecondary Enrollment Rate | Earned Postsecondary Math Credit | Math Course-Taking Rate* |
|-------------------------|-----------|------------------------------------|--------------------------------------|----------------------------------|--------------------------|
| All levels | 28,778 | 12,785 | 44% | 8,122 | 64% |
| No SBA | 11,502 | 5,375 | 47% | 3,265 | 61% |
| Level 1 | 5,639 | 1,735 | 31% | 1,133 | 65% |
| Level 2 | 5,345 | 2,330 | 44% | 1,475 | 63% |
| Level 3 | 4,192 | 2,168 | 52% | 1,420 | 65% |
| Level 4 | 2,100 | 1,177 | 56% | 829 | 70% |

**The Math Course-Taking Rate is the number of students earning credit pre-college or college-level mathematics relative to the number who earned credit in any math course.*

Table B-12: Low-income student

| SBA Assessment Category | Graduates | Enrolled Public Postsecondary 2018 | Public Postsecondary Enrollment Rate | Earned Postsecondary Math Credit | Math Course-Taking Rate* |
|-------------------------|-----------|------------------------------------|--------------------------------------|----------------------------------|--------------------------|
| All levels | 30,047 | 12,493 | 42% | 8,550 | 68% |
| No SBA | 9,157 | 3,884 | 42% | 2,578 | 66% |
| Level 1 | 8,663 | 2,638 | 30% | 1,825 | 69% |
| Level 2 | 6,557 | 2,869 | 44% | 1,941 | 68% |
| Level 3 | 4,106 | 2,154 | 52% | 1,501 | 70% |
| Level 4 | 1,564 | 948 | 61% | 705 | 74% |

**The Math Course-Taking Rate is the number of students earning credit pre-college or college-level mathematics relative to the number who earned credit in any math course.*

Table B-13: Non-low income student

| SBA Assessment Category | Graduates | Enrolled Public Postsecondary 2018 | Public Postsecondary Enrollment Rate | Earned Postsecondary Math Credit | Math Course-Taking Rate* |
|-------------------------|-----------|------------------------------------|--------------------------------------|----------------------------------|--------------------------|
| All levels | 35,444 | 17,913 | 51% | 12,275 | 69% |
| No SBA | 14,609 | 7,255 | 50% | 4,781 | 66% |
| Level 1 | 4,298 | 1,691 | 39% | 1,130 | 67% |
| Level 2 | 5,738 | 2,927 | 51% | 2,007 | 69% |
| Level 3 | 6,122 | 3,445 | 56% | 2,443 | 71% |
| Level 4 | 4,677 | 2,595 | 55% | 1,914 | 74% |

*The Math Course-Taking Rate is the number of students earning credit pre-college or college-level mathematics relative to the number who earned credit in any math course.

Table B-14: Female students, first high school-level course Algebra 1

| SBA Assessment Category | Graduates | Enrolled Public Postsecondary 2018 | Public Postsecondary Enrollment Rate | Earned Postsecondary Math Credit | Math Course-Taking Rate* |
|-------------------------|-----------|------------------------------------|--------------------------------------|----------------------------------|--------------------------|
| All levels | 14,293 | 6,715 | 47% | 4,559 | 68% |
| No SBA | 4,478 | 2,038 | 46% | 1,303 | 64% |
| Level 1 | 4,222 | 1,698 | 40% | 1,196 | 70% |
| Level 2 | 3,714 | 1,931 | 52% | 1,328 | 69% |
| Level 3 | 1,658 | 922 | 56% | 645 | 70% |
| Level 4 | 221 | 126 | 57% | 87 | 69% |

*The Math Course-Taking Rate is the number of students earning credit pre-college or college-level mathematics relative to the number who earned credit in any math course.

Table B-15: Male students, first high school-level course Algebra 1

| SBA Assessment Category | Graduates | Enrolled Public Postsecondary 2018 | Public Postsecondary Enrollment Rate | Earned Postsecondary Math Credit | Math Course-Taking Rate* |
|-------------------------|-----------|------------------------------------|--------------------------------------|----------------------------------|--------------------------|
| All levels | 13,996 | 5,260 | 38% | 3,796 | 72% |
| No SBA | 3,993 | 1,550 | 39% | 1,109 | 72% |
| Level 1 | 4,206 | 1,171 | 28% | 822 | 70% |
| Level 2 | 3,567 | 1,417 | 40% | 1,004 | 71% |
| Level 3 | 1,826 | 910 | 50% | 686 | 75% |
| Level 4 | 404 | 212 | 52% | 175 | 83% |

*The Math Course-Taking Rate is the number of students earning credit pre-college or college-level mathematics relative to the number who earned credit in any math course.

Table B-16: Female students, first high school-level course Geometry

| SBA Assessment Category | Graduates | Enrolled Public Postsecondary 2018 | Public Postsecondary Enrollment Rate | Earned Postsecondary Math Credit | Math Course-Taking Rate* |
|-------------------------|-----------|------------------------------------|--------------------------------------|----------------------------------|--------------------------|
| All levels | 10,966 | 6,110 | 56% | 3,845 | 63% |
| No SBA | 4,565 | 2,474 | 54% | 1,491 | 60% |
| Level 1 | 866 | 388 | 45% | 248 | 64% |
| Level 2 | 1,697 | 965 | 57% | 627 | 65% |
| Level 3 | 2,533 | 1,525 | 60% | 982 | 64% |
| Level 4 | 1,305 | 758 | 58% | 497 | 66% |

*The Math Course-Taking Rate is the number of students earning credit pre-college or college-level mathematics relative to the number who earned credit in any math course.

Table B-17: Male students, first high school-level course Geometry

| SBA Assessment Category | Graduates | Enrolled Public Postsecondary 2018 | Public Postsecondary Enrollment Rate | Earned Postsecondary Math Credit | Math Course-Taking Rate* |
|-------------------------|-----------|------------------------------------|--------------------------------------|----------------------------------|--------------------------|
| All levels | 9,935 | 5,160 | 52% | 3,816 | 74% |
| No SBA | 3,579 | 1,842 | 51% | 1,327 | 72% |
| Level 1 | 905 | 331 | 37% | 220 | 66% |
| Level 2 | 1,524 | 736 | 48% | 523 | 71% |
| Level 3 | 2,190 | 1,232 | 56% | 938 | 76% |
| Level 4 | 1,737 | 1,019 | 59% | 808 | 79% |

**The Math Course-Taking Rate is the number of students earning credit pre-college or college-level mathematics relative to the number who earned credit in any math course.*

Appendix C: Postsecondary Pre-College (Developmental) Math Courses

Many students who start their college career with a pre-college course sequence complete college-level courses in the same subject area. The pre-college level courses provide a foundation for moving on to courses that satisfy degree requirements. Credits earned in pre-college courses are not applicable to degree requirements

Placement in pre-college math

Historically, students were most often placed in math courses based on scores on **standardized assessments**. Each higher education institution had “cut scores” that, if attained, allowed students to enroll in college-level math courses. Students who did not attain the cut score were placed in an appropriate level pre-college course. This practice continues in many institutions, but in most colleges, there are several additional placement options available.

Example: Renton Technical College offers ACCUPLACER testing as a way of placing into a particular level of math.¹⁷ An Arithmetic score of 80 or an Elementary Algebra score of 30 places a student in Math 085 Beginning Algebra. A NEXTGEN Quantitative Reasoning, Algebra and Statistics score of 250+ places a student in Math 095 Intermediate Algebra.¹⁸

In recent years **articulation plans** have been developed between specific high schools and individual community colleges that relate college math course placement to high school transcripts.

Example from Green River College: Graduates from Enumclaw High School with a B or better in Algebra 2 with Trig within a year of college entry place into college-level math. Those with a C+ in Algebra 2 with Trig within one year of enrollment place into Math 097.¹⁹

Another trend is the designation of pre-college level courses as **corequisite courses**, where a pre-college course is paired with a related college-level course.

¹⁷ ACCUPLACER testing is offered by the College Board. See <https://accuplacer.collegeboard.org/students/prepare-for-accuplacer/whats-on-tests> for a description of the various tests offered. To place students into math courses, one of three tests is used – “Arithmetic,” “Elementary Algebra,” or “Quantitative Reasoning, Algebra, and Statistics (QAS).”

¹⁸ These examples are contained in the 2020-21 Renton Technical College catalog <https://www.rtc.edu/sites/default/files/20200708r-2020-21%20RTC%20College%20Catalog%20PDF.pdf>

¹⁹ This example is contained in the Green River College “High School Transcript Placement” page at <https://www.greenriver.edu/students/academics/assessment-testing-center/course-placement/high-school-transcript-placement/>

*Example from Clark College: Math 104 Finite Math with Support covers the same topics as Math 105 Finite Mathematics, paired with a linked support course, Math 004. This combination allows students who are placed near but not at college readiness to take Finite Math.*²⁰

In some instances, the pre-college support work is combined into the college-level work in a single course, with credits distributed appropriately.

*Example from Highline College: MATHP 111 College Algebra Plus Extra Support is a 10-credit class for students who place slightly below Math 111. It results in 5 credits for Math 091 and 5 credits for Math 111.*²¹

Sometimes math courses numbered below 100 are required for certificates or degrees. Since they are a program requirement, they should not (and are not) classified as pre-college courses.

*Example from Everett Community College: Math 060 Professional/Technical Math – Cosmetology is a required course for Cosmetology Certificate and Degree.*²²

Pre-college math at public baccalaureate institutions

Defining which courses constitute pre-college math enrollment at the public baccalaureate institutions is straightforward. A limited number of courses are offered, and except for a pre-algebra course at CWU, all are introductory or intermediate algebra.

Some baccalaureate institutions direct students to pre-college courses offered by the CTCs to prepare them for college-level math.

The pre-college math courses offered by the public baccalaureate institutions are:²³

- CWU: Math 100A (Pre-Algebra), Math 100B (Introductory Algebra), and Math 100C (Intermediate Algebra).
- WSU: Math 100 (Basic Mathematics) and Math 103 (Algebra Methods and Introduction to Functions).

²⁰ This example is contained in the Clark College mathematics course descriptions page at <https://catalog.clark.edu/course-descriptions/math/>.

²¹ See the Highline College course description at <https://catalog.highline.edu/content.php?catoid=26&navoid=1788>

²² <https://www.everettcc.edu/files/enrollment/catalog/2020-21-catalog.pdf>

²³ These descriptions are available in the course catalogs for the public baccalaureate institutions.

- EWU: MTHD 103 (Basic Algebra), MTHD 104 (Int. Algebra) for Health, Business or STEM majors, and MTHD 106 (Algebra Reasoning) for Liberal Arts, Social Sciences, and Elementary Education majors.
- WWU offers Math 099 (Introductory Algebra).

UW offers Math 098 (Intermediate Algebra) equivalent to Intermediate Algebra in most CTCs.²⁴

Students at baccalaureate institutions can take pre-college courses at nearby community and technical colleges, as well.

Identification of pre-college courses in CTC data

Community and technical colleges offer a wide range of coursework in math. Adult Basic Education (ABE) courses focus on foundational courses designed for adults with skills below high school level. Pre-college courses, also known as “Developmental Courses,” include Pre-Algebra, Beginning Algebra, and Intermediate Algebra.

Basic skills courses are indicated in the transcript files by an associated CIP code beginning with ‘32’.²⁵ These courses are typically excluded from pre-college course-taking calculations. While there are no CIP codes in this series specific to mathematics courses, course titles sometimes indicate a math focus.²⁶

Pre-college courses used in outcome calculations are associated with CIP 33.0101.²⁷ The entry from the SBCTC coding manual that describes pre-college courses is as follows:

33.0101: Developmental Computational Skills

Non-transferable credit courses that describe the development of pre-college mathematical skills that are needed to perform day-to-day tasks and to form the basis for later learning and achievement.

In working with course-level CTC data, we discovered inconsistencies in the CIP coding of mathematics courses. The result is that at some colleges, courses classified as pre-college include the full range –

²⁴ See the UW Equivalency Guide at <https://admit.washington.edu/apply/transfer/equivalency-guide/>

²⁵ Classification of Instructional Program (CIP) codes used by SBCTC are based on the U.S. Department of Education classification (see <https://nces.ed.gov/ipeds/cipcode/>), but use of codes beginning with ‘33’ is specific to the SBCTC system.

²⁶ <https://www.sbctc.edu/colleges-staff/programs-services/basic-education-for-adults/>

²⁷ <https://www.sbctc.edu/resources/documents/colleges-staff/data-services/data-warehouse/cip-2020-descriptions.pdf>

arithmetic through intermediate algebra. At other colleges, pre-college coursework starts with beginning algebra; more elementary courses are classified as basic education.

The following adjustments were made for this analysis:

- Colleges offering basic skills-level mathematics courses such as Arithmetic or Numerical Literacy in Mathematics departments sometimes coded these courses as pre-college courses. These were excluded from the calculations in this analysis. Generally, any course more basic than Pre-Algebra was excluded from this analysis.
- In some instances, beginning and intermediate algebra courses, which were the prerequisites for college-level work, were assigned CIP codes associated with college-level mathematics. These courses were treated as pre-college courses in this analysis.

Appendix D: Mathematics SBA Levels by High School and Postsecondary Characteristics

| | All | No SBA | Mathematics SBA Level | | | |
|-------------------------------------|--------|--------|-----------------------|---------|---------|---------|
| | | | Level 1 | Level 2 | Level 3 | Level 4 |
| All graduates | 65,491 | 23,766 | 12,961 | 12,295 | 10,228 | 6,241 |
| | | 36% | 20% | 19% | 16% | 10% |
| Enrolled, public postsecondary | 20,825 | 7,359 | 2,955 | 3,948 | 3,944 | 2,619 |
| | | 35% | 14% | 19% | 19% | 13% |
| High school grads with Algebra 2 | 40,721 | 14,439 | 5,615 | 8,124 | 7,773 | 4,770 |
| | | 35% | 14% | 20% | 19% | 12% |
| Enrolled, public postsecondary | 20,825 | 7,359 | 2,955 | 3,948 | 3,944 | 2,619 |
| | | 35% | 14% | 19% | 19% | 13% |
| High school grads without Algebra 2 | 24,770 | 9,327 | 7,346 | 4,171 | 2,455 | 1,471 |
| | | 38% | 30% | 17% | 10% | 6% |
| Enrolled, public postsecondary | 5,923 | 2,326 | 1,221 | 1,027 | 759 | 590 |
| | | 39% | 21% | 17% | 13% | 10% |
| Two or more credits beyond Geometry | 29,429 | 10,352 | 2,363 | 4,859 | 6,597 | 5,258 |
| | | 35% | 8% | 17% | 22% | 18% |
| Enrolled, public postsecondary | 12,050 | 3,956 | 901 | 2,044 | 2,865 | 2,284 |
| | | 33% | 7% | 17% | 24% | 19% |
| Bridge to College Mathematics | 1,499 | 284 | 454 | 593 | 168 | |
| | | 19% | 30% | 40% | 11% | |
| Enrolled, public postsecondary | 541 | 87 | 160 | 229 | 65 | |
| | | 16% | 30% | 42% | 12% | |
| Grade 12 math course | 36,713 | 12,264 | 7,322 | 6,950 | 6,036 | 4,141 |
| | | 33% | 20% | 19% | 16% | 11% |
| Enrolled, public postsecondary | 12,703 | 4,094 | 1,822 | 2,473 | 2,524 | 1,790 |
| | | 32% | 14% | 19% | 20% | 14% |
| No Grade 12 math course | 28,778 | 11,502 | 5,639 | 5,345 | 4,192 | 2,100 |
| | | 40% | 20% | 19% | 15% | 7% |
| Enrolled, public postsecondary | 8,122 | 3,265 | 1,133 | 1,475 | 1,420 | 829 |
| | | 40% | 14% | 18% | 17% | 10% |
| AP Calculus or Statistics | 9,980 | 3,904 | 248 | 739 | 2,026 | 3,063 |
| | | 39% | 2% | 7% | 20% | 31% |
| Enrolled, public postsecondary | 4,094 | 1,436 | 113 | 332 | 904 | 1,309 |
| | | 35% | 3% | 8% | 22% | 32% |
| First math course Algebra 1 | 28,289 | 8,471 | 8,428 | 7,281 | 3,484 | 625 |
| | | 30% | 30% | 26% | 12% | 2% |
| Enrolled, public postsecondary | 8,355 | 2,412 | 2,018 | 2,332 | 1,331 | 262 |
| | | 29% | 24% | 28% | 16% | 3% |

| | All | No SBA | Mathematics SBA Level | | | |
|--------------------------------|--------|--------|-----------------------|---------|---------|---------|
| | | | Level 1 | Level 2 | Level 3 | Level 4 |
| First math course Geometry | 20,901 | 8,144 | 1,771 | 3,221 | 4,723 | 3,042 |
| | | 39% | 8% | 15% | 23% | 15% |
| Enrolled, public postsecondary | 7,661 | 2,818 | 468 | 1,150 | 1,920 | 1,305 |
| | | 37% | 6% | 15% | 25% | 17% |
| First math course Algebra 2 | 6,535 | 3,093 | 277 | 510 | 1,000 | 1,655 |
| | | 47% | 4% | 8% | 15% | 25% |
| Enrolled, public postsecondary | 2,363 | 1,059 | 67 | 163 | 398 | 676 |
| | | 45% | 3% | 7% | 17% | 29% |
| Low income | 30,047 | 9,157 | 8,663 | 6,557 | 4,106 | 1,564 |
| | | 30% | 29% | 22% | 14% | 5% |
| Enrolled, public postsecondary | 8,550 | 2,578 | 1,825 | 1,941 | 1,501 | 705 |
| | | 30% | 21% | 23% | 18% | 8% |
| Non-low income | 35,444 | 14,609 | 4,298 | 5,738 | 6,122 | 4,677 |
| | | 41% | 12% | 16% | 17% | 13% |
| Enrolled, public postsecondary | 12,275 | 4,781 | 1,130 | 2,007 | 2,443 | 1,914 |
| | | 39% | 9% | 16% | 20% | 16% |
| First course Algebra 1, Female | 14,293 | 4,478 | 4,222 | 3,714 | 1,658 | 221 |
| | | 31% | 30% | 26% | 12% | 2% |
| Enrolled, public postsecondary | 4,559 | 1,303 | 1,196 | 1,328 | 645 | 87 |
| | | 29% | 26% | 29% | 14% | 2% |
| First course Algebra 1, Male | 13,996 | 3,993 | 4,206 | 3,567 | 1,826 | 404 |
| | | 29% | 30% | 25% | 13% | 3% |
| Enrolled, public postsecondary | 3,796 | 1,109 | 822 | 1,004 | 686 | 175 |
| | | 29% | 22% | 26% | 18% | 5% |
| First course Geometry, Female | 10,966 | 4,565 | 866 | 1,697 | 2,533 | 1,305 |
| | | 42% | 8% | 15% | 23% | 12% |
| Enrolled, public postsecondary | 3,845 | 1,491 | 248 | 627 | 982 | 497 |
| | | 39% | 6% | 16% | 26% | 13% |
| First course Geometry, Male | 9,935 | 3,579 | 905 | 1,524 | 2,190 | 1,737 |
| | | 36% | 9% | 15% | 22% | 17% |
| Enrolled, public postsecondary | 3,816 | 1,327 | 220 | 523 | 938 | 808 |
| | | 35% | 6% | 14% | 25% | 21% |