

ADVANCED COURSEWORK BACKGROUND

Advanced coursework refers to high school courses like Advanced Placement (AP), dual enrollment (DE), and International Baccalaureate (IB). These courses tend to be the most rigorous coursework students can take in high school.

- AP – courses and exams students can take in high school to earn college credit
- DE – college courses students can take while enrolled in high school
- IB – in its original form, a two-year liberal arts secondary program focused on educating the whole child and emphasizing critical thinking

Research has found positive effects of advanced coursework at both the high school and post-secondary levels:

- In high school, advanced coursework correlates with higher test scores and overall GPA, reduced absences and likelihood of dropout, and higher high school graduation rates.¹
 - The courses tend to emphasize higher-order thinking skills (like critical thinking), provide more opportunities to learn, more instructional time, more content coverage, and more challenging material than lower-level courses.²
 - The courses also tend to attract more experienced teachers.³
 - Students report being challenged, a strong sense of community, developing career-specific interests, and high workloads/stress (specifically in AP/IB).⁴
- In college, advanced coursework is associated with higher college enrollment, persistence, and completion and can benefit students in admissions.⁵
 - Students taking advanced coursework in high school report feeling prepared (e.g., academically, time management, motivation) in college and do well academically.⁶

¹ (Cortes, Moussa, and Weinstein 2013; Saavedra 2014; Long, Conger, and Iatarola 2012; Schneider, Swanson, and Riegle-Crumb 1998; Attewell and Domina 2008; Lauen et al. 2017; Adelman 2006; Berger et al. 2013)

² (e.g., Oakes 2005; Gamoran 2010; Gamoran et al. 1997; Slavin and Braddock 1994; Nord et al. 2011)

³ (Sadler et al. 2010; Clotfelter, Ladd, and Vigdor 2010; Kelly 2004; Kalogrides and Loeb 2013; Kalogrides, Loeb, and Bêteille 2013; Oakes 2005)

⁴ (Foust, Hertberg-Davis, and Callahan 2009; Hertberg-Davis and Callahan 2008; Sadler et al. 2010)

⁵ (Saavedra 2014 (IB); Sadler et al. 2010 (AP); Austin 2017; Coca et al. 2012; Wildhagen 2014; Horn and Kojaku 2001; Long, Conger, and Iatarola 2012; An 2013; Edmunds et al. 2017; What Works Clearinghouse 2017; Speroni 2011; Lauen et al. 2017; Bowen, Chingos, and McPherson 2009; Adelman 2006)

⁶ (Coca et al. 2012)

- Prior coursetaking predicts later coursetaking.⁷

Access is unequally distributed among racial/ethnic groups, social class, geography, etc., with low-income, Black, and Latinx students less likely to have access to or take advanced coursework.⁸ Controlling for pre-high school characteristics like achievement, Black and Latinx students are more likely to take advanced courses.⁹

As advanced coursework opportunities have expanded to more students, AP exam performance has seen:

- Increasing shares of students earning a “1” on AP exams¹⁰
- Persistent racial/ethnic and socioeconomic gaps in exam pass rates¹¹

There is variation in the preparation of students for AP courses and exams, content coverage in such courses, and these trends disproportionately impact Black, Latinx, and low-income students.

New Jersey

⁷ (e.g. Riegle-Crumb 2006; Schneider, Swanson, and Riegle-Crumb 1998; Kanno and Kangas 2014; Schiller et al. 2010; Lucas 2001; Conger, Long, and Iatarola 2009; Schmidt and McKnight 2012; Adelman 1999, 2006)

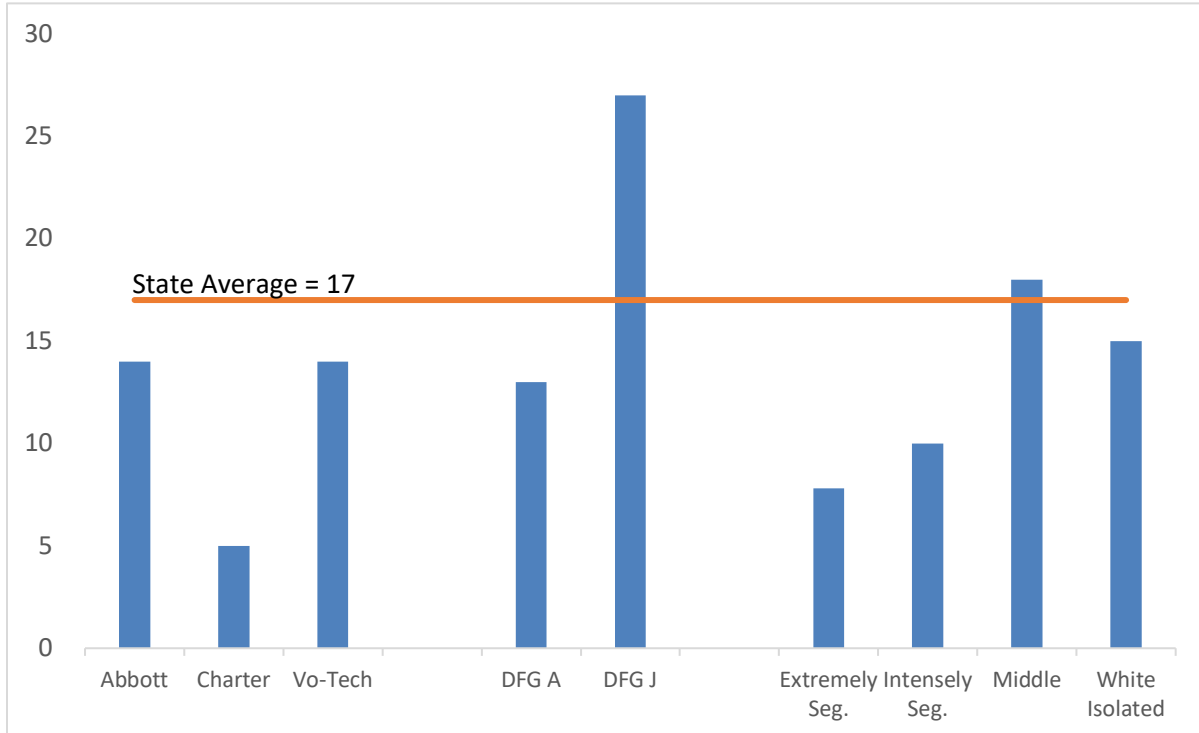
⁸ (e.g., Lucas 2001; Gamoran 2010; Oakes 2005; Lucas 1999; Riegle-Crumb and Grodsky 2010; The College Board 2014; Attewell and Domina 2008; O’Connor et al. 2011; Aud, Fox, and KewalRamani 2010; Musu-Gillette et al. 2017)

⁹ (e.g., Conger, Long, and Iatarola 2009; Lucas 1999)

¹⁰ (Judson and Hobson 2015)

¹¹ (The College Board 2017, 2014)

The number of AP subjects students have access to varies by school district type:



In 2017-18, charter districts offered the fewest number of AP subjects. Extremely and intensely segregated districts had fewer distinct AP subjects than middle or white isolated districts. Those categorized in the “A” district factor group (lowest socioeconomic category) had about half of the number of AP subjects as in DFG J.

Table 1: Likelihood of Participating in Advanced Coursework

	Enroll IB	Enroll DE	Enroll AP	Take AP Exam	Pass AP Exam
Latinx	-19%	-30%	-46%	-45%	-65%
Asian	+205%	+75%	+139%	+163%	+210%
Black	-46%	-53%	-58%	-61%	-78%
White	-20%	+36%	+40%	+34%	+69%

In the 2015-16 year, Black and Latinx students participated in IB, DE, and AP at lower rates than White and Asian students. For example, Latinx students were 46 percent less likely than students of other racial-ethnic groups to enroll in AP.¹²

¹² Comparisons are between the racial-ethnic group and all other students. Data source: 2015-16 Civil Rights Data Collection, author calculations.

Table 2: Racial-Ethnic Comparisons of Likelihood of Participating in Advanced Coursework

			State	Schools Offering AP	AP Seats	AP Exam Seats
<i>Taking AP Course</i>	Asian	Black	359%	326%		
		Latinx	252%	239%		
		White	82%	82%		
	White	Black	152%	134%		
		Latinx	93%	86%		
<i>Taking AP Exams</i>	Asian	Black	423%	386%	14%	
		Latinx	277%	263%	7%	
		White	101%	101%	10%	
	White	Black	160%	142%	3%	
		Latinx	88%	81%	-3%	
<i>Passing AP Exams</i>	Asian	Black	950%	875%	129%	101%
		Latinx	540%	516%	82%	70%
		White	108%	108%	14%	4%
	White	Black	405%	370%	100%	94%
		Latinx	207%	197%	59%	64%

- In specific racial-ethnic group comparisons, Asian students were 423 percent more likely than Black students to take an AP exam (in the state as a whole), yet among students enrolled in AP courses, Asian students were only 14 percent more likely than Black students to take an AP exam.
- However, even among students enrolled in AP courses and who take AP exams, racial-ethnic disparities persist in the likelihood of passing at least one AP exam. Of students who took an AP exam, White students were 94 percent more likely than Black students and 64 percent more likely than Latinx students to pass an AP exam.

In the 2017-18 academic year, about 35 percent of 11th and 12th graders took AP or IB courses, and 13 percent took at least one DE course. Not all students who took AP/IB courses participated in the corresponding assessment: 28 percent took AP or IB exams, and 21 percent earned a passing score.¹³

In 2018, about 79,000 New Jersey students took more than 154,000 AP exams:¹⁴

¹³ 2017-18 NJ School Performance Reports

¹⁴ Data source: The College Board and 2017-18 NJ DOE Enrollments, author calculations.

	<i>Average Score</i>	<i>% of Exam Takers</i>	<i>% of Passing Exams</i>	<i>% of public K-12</i>
Asian	3.59	20%	28%	10%
Black	2.32	6%	3%	15%
Latinx	2.69	18%	12%	28%
White	3.28	49%	51%	44%
Statewide	3.22			

- Black and Latinx students had lower average exam scores than White and Asian students and had lower rates of taking and passing AP exams.
- Of 2018 AP test takers, about 79 percent of Asian student exams earned a passing score, compared to 72 percent of White, 52 percent of Latinx, and 40 percent of Black student exams (69 percent state average).

Possible Implementation Issues:

Increasing access to AP courses benefits students who did not previously have access, though this has been met with an unintended consequence of nearby schools (that already offered AP) increasing their AP offerings, effectively maintaining inequality in the *number* of courses or subjects provided.¹⁵

Course titles do not always convey the breadth and depth of course content; there are variations in content coverage in courses of similar titles (e.g., algebra).¹⁶

Double-dosing, where students take more than one course in the same subject, can have an unintended consequence of reduced time in other subject areas, like the arts. Strategies for creating a supportive environment for students receiving supports, such as double-dosing, tutoring, or extra instructional time, should be identified to reduce any stigma associated with the additional supports.

Sample Recommendations:

Increase participation in advanced coursework among Black, Latinx, low-income students (all learner levels):

- Particularly in Abbott, DFG A, and extremely and intensely segregated school districts, increase school and district capacity to offer advanced courses (e.g., hiring, additional training or professional development series).

¹⁵ (Klugman 2013)

¹⁶ (e.g. Schneider, Swanson, and Riegle-Crumb 1998)

- Implement universal and multiple screening methods to identify students immediately prepared for advanced coursework.¹⁷
- For students who are not as academically prepared, identify and implement scaffolding measures to increase access to and success in advanced courses. Some examples might include more instructional time / additional coursework, supplemental tutoring, etc.¹⁸
- Address achievement gaps in early childhood so more students are on track for advanced coursework by middle school and ninth grade.
- Increase access to IB pipelines with IB Primary and Middle Years Programs.

Teachers

Research documents the long-standing association between teacher experience and the skill level of the classroom, which can impact students' perception of themselves and their ability, their motivation, effort, and achievement.¹⁹

- Examine current patterns of teacher sorting between districts, schools, and within schools (e.g., advanced courses) to identify districts, schools, and classes in need of more experienced teachers.
- Identify ways to equitably distribute teachers throughout the state, district, and schools, with attention to attracting and retaining more qualified teachers in Abbot, DFG A, and extremely and intensely segregated districts.²⁰
- Identify strategies for maintaining high academic expectations for *all* students among instructional, administrative, and support staff.²¹

Funding

- Eliminate district-by-district and school-by-school differences in the funding for exams and coursework-related fees and the procedures for acquiring such funding by creating a streamlined, statewide process for low-income and underrepresented students that might include:
 - Identifying current funding mechanisms (including average cost per student per exam) and application procedures throughout the state
 - Considering ways to make the process more automatic and less opt-in, such as identifying eligible students through their FRL status.

¹⁷ (Card and Giuliano 2016; Mayer 2008; McBee, Peters, and Miller 2016)

¹⁸ (e.g., Mayer 2008; Kyburg, Hertberg-Davis, and Callahan 2007; Watanabe 2019)

¹⁹ (e.g. Oakes 2005)

²⁰ See potential strategies for this in other briefing documents, like Special Education.

²¹ (Gamoran 2017; Kelly and Carbonaro 2012; Burriss 2008; Burriss, Heubert, and Levin 2006; Rubin 2008)

- Consider additional, explicit funding support for AP/IB exams and DE coursework fees in Abbott, DFG A, extremely segregated and intensely segregated districts (beyond ESSA).

Alignment with Higher Education

- Identify opportunities to connect high school advanced coursework and higher education. Ideas might include: creating district- or regional-wide dual enrollment articulation agreements, etc.

References

- Adelman, Clifford. 1999. "Answers in the Tool Box: Academic Intensity, Attendance Patterns, and Bachelor's Degree Attainment." Jessup, MD: U.S. Department of Education.
- . 2006. "The Toolbox Revisited: Paths to Degree Completion From High School Through College." Washington DC: U.S. Department of Education.
<http://eric.ed.gov/?id=ED490195>.
- An, Brian P. 2013. "The Impact of Dual Enrollment on College Degree Attainment: Do Low-SES Students Benefit?" *Educational Evaluation and Policy Analysis* 35 (1): 57–75.
<https://doi.org/10.3102/0162373712461933>.
- Attewell, Paul, and Thurston Domina. 2008. "Raising the Bar: Curricular Intensity and Academic Performance." *Educational Evaluation and Policy Analysis* 30 (1): 51–71.
- Aud, Susan, Mary Ann Fox, and Angelina KewalRamani. 2010. "Status and Trends in the Education of Racial and Ethnic Groups." NCES 2010-015. Washington DC: National Center for Education Statistics, U.S. Department of Education.
<http://nces.ed.gov/pubs2010/2010015.pdf>.
- Austin, Megan. 2017. "High School Curricular Intensity: Inequalities in Access and Returns Over Three Decades." Dissertation, South Bend, IN: University of Notre Dame.
- Berger, Andrea, Lori Turk-Bicakci, Michael Gareth, Mengli Song, Joel Knudson, Clarisse Haxton, Kristina Zeiser, et al. 2013. "Early College, Early Success: Early College High School Initiative Impact Study." Washington DC: American Institutes for Research.
- Bowen, William G., Matthew M. Chingos, and Michael S. McPherson. 2009. *Crossing the Finish Line: Completing College at America's Public Universities*. Princeton, NJ: Princeton University Press.
- Burris, Carol C. 2008. "Accountability, Rigor, and Detracking: Achievement Effects of Embracing a Challenging Curriculum as a Universal Good for All Students." *Teachers College Record* 110 (3): 571–607.
- Burris, Carol C., Jay P. Heubert, and Henry M. Levin. 2006. "Accelerating Mathematics Achievement Using Heterogeneous Grouping." *American Educational Research Journal* 43 (1): 137–154.
- Card, David, and Laura Giuliano. 2016. "Universal Screening Increases the Representation of Low-Income and Minority Students in Gifted Education." *Proceedings of the National Academy of Sciences* 113 (48): 13678–83. <https://doi.org/10.1073/pnas.1605043113>.

- Clotfelter, Charles T., Helen F. Ladd, and Jacob L. Vigdor. 2010. "Teacher Credentials and Student Achievement in High School: A Cross-Subject Analysis with Student Fixed Effects." *Journal of Human Resources* 45 (3): 655–81.
<https://doi.org/10.3368/jhr.45.3.655>.
- Coca, Vanessa, David Johnson, Thomas Kelley-Kemple, Melissa Roderick, Eliza Moeller, Nicole Williams, and Kafi Moragne. 2012. "Working to My Potential: The Postsecondary Experiences of CPS Students in the International Baccalaureate Diploma Programme." Chicago: University of Chicago Consortium on School Research.
<https://consortium.uchicago.edu/sites/default/files/publications/IB%20Report1.pdf>.
- Conger, Dylan, Mark C. Long, and Patrice Iatarola. 2009. "Explaining Race, Poverty, and Gender Disparities in Advanced Course-Taking." *Journal of Policy Analysis and Management* 28 (4): 555–76. <https://doi.org/10.1002/pam.20455>.
- Cortes, Kalena E., Wael S. Moussa, and Jeffrey M. Weinstein. 2013. "Educating Bright Students in Urban Schools." *Economics of Education Review* 37 (December): 286–97.
<https://doi.org/10.1016/j.econedurev.2013.07.002>.
- Edmunds, Julie A., Fatih Unlu, Elizabeth Glennie, Lawrence Bernstein, Lily Fesler, Jane Furey, and Nina Arshavsky. 2017. "Smoothing the Transition to Postsecondary Education: The Impact of the Early College Model." *Journal of Research on Educational Effectiveness* 10 (2): 297–325. <https://doi.org/10.1080/19345747.2016.1191574>.
- Foust, Regan Clark, Holly Hertberg-Davis, and Carolyn M. Callahan. 2009. "Students' Perceptions of the Non-Academic Advantages and Disadvantages of Participation in Advanced Placement Courses and International Baccalaureate Programs." *Adolescence* 44 (174): 289–312.
- Gamoran, Adam. 2010. "Tracking and Inequality: New Directions for Research and Practice." In *The Routledge International Handbook of the Sociology of Education*, edited by Michael W. Apple, Stephen J. Ball, and Luis Armando Gandin, 213–28. London: Routledge.
<http://eric.ed.gov/?id=ED506617>.
- . 2017. "Engaging English Learners with Rigorous Academic Content: Insights from Research on Tracking." New York: William T. Grant Foundation.
http://wtgrantfoundation.org/library/uploads/2017/12/Engaging-English-Learners_Adam-Gamoran_WTG_2017.pdf.
- Gamoran, Adam, Andrew C. Porter, John Smithson, and Paula A. White. 1997. "Upgrading High School Mathematics Instruction: Improving Learning Opportunities for Low-Achieving, Low-Income Youth." *Educational Evaluation and Policy Analysis* 19 (4): 325–38.
<https://doi.org/10.2307/1164447>.
- Hertberg-Davis, Holly, and Carolyn M. Callahan. 2008. "A Narrow Escape: Gifted Students' Perceptions of Advanced Placement and International Baccalaureate Programs." *The Gifted Child Quarterly* 52 (3): 199–216.
- Horn, Laura, and Lawrence K. Kojaku. 2001. "High School Academic Curriculum and the Persistence Path Through College: Persistence and Transfer Behavior of Undergraduates 3 Years After Entering 4-Year Institutions." NCES 2001-163. Washington DC: U.S. Department of Education, National Center for Education Statistics.
<https://nces.ed.gov/pubs2001/2001163.pdf>.

- Judson, Eugene, and Angela Hobson. 2015. "Growth and Achievement Trends of Advanced Placement (AP) Exams in American High Schools." *American Secondary Education* 43 (2): 59–76.
- Kalogrides, Demetra, and Susanna Loeb. 2013. "Different Teachers, Different Peers: The Magnitude of Student Sorting Within Schools." *Educational Researcher* 42 (6): 304–16. <https://doi.org/10.3102/0013189X13495087>.
- Kalogrides, Demetra, Susanna Loeb, and Tara Béteille. 2013. "Systematic Sorting: Teacher Characteristics and Class Assignments." *Sociology of Education* 86 (2): 103–23. <https://doi.org/10.1177/0038040712456555>.
- Kanno, Yasuko, and Sara E. N. Kangas. 2014. "'I'm Not Going to Be, Like, for the AP': English Language Learners' Limited Access to Advanced College-Preparatory Courses in High School." *American Educational Research Journal* 51 (5): 848–78. <https://doi.org/10.3102/0002831214544716>.
- Kelly, Sean. 2004. "Are Teachers Tracked? On What Basis and with What Consequences." *Social Psychology of Education* 7 (1): 55–72. <https://doi.org/10.1023/B:SPOE.0000010673.78910.f1>.
- Kelly, Sean, and William Carbonaro. 2012. "Curriculum Tracking and Teacher Expectations: Evidence from Discrepant Course Taking Models." *Social Psychology of Education* 15 (3): 271–94. <https://doi.org/10.1007/s11218-012-9182-6>.
- Klugman, Joshua. 2013. "The Advanced Placement Arms Race and the Reproduction of Educational Inequality." *Teachers College Record* 115 (5): 1–34.
- Kyburg, Robin M., Holly Hertberg-Davis, and Carolyn M. Callahan. 2007. "Advanced Placement and International Baccalaureate Programs: Optimal Learning Environments for Talented Minorities?" *Journal of Advanced Academics* 18 (2): 172–215. <https://doi.org/10.4219/jaa-2007-357>.
- Lauen, Douglas L., Nathaniel Barrett, Sarah Fuller, and Ludmila Janda. 2017. "Early Colleges at Scale: Impacts on Secondary and Postsecondary Outcomes." *American Journal of Education* 123 (4): 000–000.
- Long, Mark C., Dylan Conger, and Patrice Iatarola. 2012. "Effects of High School Course-Taking on Secondary and Postsecondary Success." *American Educational Research Journal* 49 (2): 285–322.
- Lucas, Samuel R. 1999. *Tracking Inequality: Stratification and Mobility in American High Schools*. New York: Teachers College Press.
- . 2001. "Effectively Maintained Inequality: Education Transitions, Track Mobility, and Social Background Effects." *American Journal of Sociology* 106 (6): 1642–1690.
- Mayer, Anysia P. 2008. "Expanding Opportunities for High Academic Achievement: An International Baccalaureate Diploma Program in an Urban High School." *Journal of Advanced Academics* 19 (2): 202–235.
- McBee, Matthew T., Scott J. Peters, and Erin M. Miller. 2016. "The Impact of the Nomination Stage on Gifted Program Identification: A Comprehensive Psychometric Analysis." *Gifted Child Quarterly* 60 (4): 258–78. <https://doi.org/10.1177/0016986216656256>.
- Musu-Gillette, Lauren, Cristobal de Brey, Joel McFarland, William Hussar, William Sonnenberg, and Sidney Wilkinson-Flicker. 2017. "Status and Trends in the Education of Racial and Ethnic Groups 2017." NCES 2017-051. Washington DC: U.S. Department of Education, National Center for Education Statistics. <https://nces.ed.gov/pubs2017/2017051.pdf>.

- Nord, Christine, S. Roey, R. Perkins, M. Lyons, N. Lemanski, J. Brown, and J. Schuknecht. 2011. "America's High School Graduates: Results of the 2009 NAEP High School Transcript Study." NCES 2011-462. Washington DC: U.S. Department of Education, National Center for Education Statistics.
<https://nces.ed.gov/nationsreportcard/pdf/studies/2011462.pdf>.
- Oakes, Jeannie. 2005. *Keeping Track: How Schools Structure Inequality*. Second. New Haven, CT: Yale University Press.
- O'Connor, C., J. Mueller, R. L. Lewis, D. Rivas-Drake, and S. Rosenberg. 2011. "'Being' Black and Strategizing for Excellence in a Racially Stratified Academic Hierarchy." *American Educational Research Journal* 48 (6): 1232–57.
<https://doi.org/10.3102/0002831211410303>.
- Riegle-Crumb, Catherine. 2006. "The Path through Math: Course Sequences and Academic Performance at the Intersection of Race-Ethnicity and Gender." *American Journal of Education* 113 (1): 101–22. <https://doi.org/10.1086/506495>.
- Riegle-Crumb, Catherine, and Eric Grodsky. 2010. "Racial-Ethnic Differences at the Intersection of Math Course-Taking and Achievement." *Sociology of Education* 83 (3): 248–70.
<https://doi.org/10.1177/0038040710375689>.
- Rubin, Beth. 2008. "Detracking in Context: How Local Constructions of Ability Complicate Equity-Geared Reform." *Teachers College Record* 110 (3): 646–99.
- Saavedra, Anna R. 2014. "The Academic Impact of Enrollment in International Baccalaureate Diploma Programs: A Case Study of Chicago Public Schools." *Teachers College Record* 116 (4): 1–40.
- Sadler, Philip M., Gerhard Sonnert, Robert H. Tai, and Kristin Klopfenstein, eds. 2010. *AP: A Critical Examination of the Advanced Placement Program*. Cambridge, MA: Harvard Education Press.
- Schiller, Kathryn S., William H. Schmidt, Chandra Muller, and Richard T. Houang. 2010. "Hidden Disparities: How Courses and Curricula Shape Opportunities in Mathematics During High School." *Equity & Excellence in Education* 43 (4): 414–33.
- Schmidt, William H., and Curtis McKnight. 2012. *Inequality for All: The Challenge of Unequal Opportunity in American Schools*. New York: Teachers College Press.
- Schneider, Barbara, Christopher B. Swanson, and Catherine Riegle-Crumb. 1998. "Opportunities for Learning: Course Sequences and Positional Advantages." *Social Psychology of Education* 2 (1): 25–53.
- Slavin, Robert E., and Jomills Henry Braddock. 1994. "Ability Grouping: On the Wrong Track." In *Access to Knowledge: The Continuing Agenda for Our Nation's Schools*, edited by John I. Goodlad and Pamela Keating, 289–96. New York: The College Board.
- Speroni, Cecilia. 2011. "Determinants of Students' Success: The Role of Advanced Placement and Dual Enrollment Programs. An NCPWR Working Paper." NCPWR Working Paper. New York: National Center for Postsecondary Research.
- The College Board. 2014. "The Tenth Annual AP Report to the Nation." New York: The College Board.
- . 2017. "AP Score Distributions - All Subjects 1997-2017." New York: The College Board.
<https://secure-media.collegeboard.org/digitalServices/pdf/research/2017/2017-Score-Distribution-All-Subjects.pdf>.

Watanabe, Teresa. 2019. "Cal State Remedial Education Reforms Help Thousands More Students Pass College-Level Math Classes." *Los Angeles Times*, February 25, 2019. <https://www.latimes.com/local/education/la-me-edu-cal-state-remedial-education-reforms-20190225-story.html>.

What Works Clearinghouse. 2017. "Dual Enrollment Programs." WWC Intervention Report. Washington DC: U.S. Department of Education, Institute of Education Sciences. https://ies.ed.gov/ncee/wwc/Docs/InterventionReports/wwc_dual_enrollment_022817.pdf.

Wildhagen, Tina. 2014. "Unequal Returns to Academic Credentials as a Hidden Dimension of Race and Class Inequality in American College Enrollments." *Research in Social Stratification and Mobility* 38 (December): 18–31. <https://doi.org/10.1016/j.rssm.2014.04.002>.

Drafted by: Kristi Donaldson, Rutgers University-Newark

Special thanks to the Tracking & Detracking Special Interest Group of the American Educational Research Association for their feedback and suggestions.

Additional resources at <https://projects.propublica.org/miseducation/> and <https://research.collegeboard.org/programs/ap>