CALCULATING THE ODDS: COUNSELOR VIEWS ON MATH COURSETAKING AND COLLEGE ADMISSIONS

For decades, calculus has been the preeminent hallmark of intelligence and academic rigor used by selective colleges as a gatekeeper in admissions. The resulting fixation on calculus by high schools exacerbates education inequities and needlessly pressures students to rush through secondary math curriculum. Calculating the Odds examines the role high school counselors and the admissions office play in influencing students’ math coursetaking using a survey and in-depth interviews of counselors. The report concludes that:

What counselors told us:

For most high school counselors, calculus is a default recommendation. Respondents valued calculus nearly universally, but particularly for students applying to selective institutions, even though they did not believe the course is academically necessary for all students.

Many counselors believe colleges covertly expect calculus. Many counselors have concluded, based on their own experiences, that calculus is at least strongly expected at highly selective schools even when institutions say it isn’t required.

Increasingly, colleges expect courses beyond introductory calculus, counselors say. Some ambitious high schools offer higher-level courses such as Multivariable Calculus, Linear Algebra, Differential Equations, and even Knot Theory, with students facing pressure to advance beyond calculus to demonstrate rigor.

Many counselors value statistics courses but say admissions offices don’t. Counselors overwhelmingly value statistics preparation, but only 5 percent of survey respondents said they recommend statistics equally with calculus for admissions purposes.

Most counselors believe calculus is not necessary for all students, yet many say pressure to accelerate to calculus is excessive. Counselors tended to blame colleges for pushing calculus, saying that colleges don’t defend or explain the preference. Some argued colleges should base math preference in admissions on a student’s curricular needs in their intended field of study.
What colleges can do:

Adopt clear admissions policies and specific guidelines about math expectations for various schools and majors.

Implement the policies consistently. Counselors, teachers, and families won’t trust that policies have changed unless they see them translated into practice.

Commit to transparency. Instead of opaque advice to “maximize what’s available,” colleges can communicate that students should, for example, have x years of progressively advanced math aligned with their academic interests.

Develop shared resources. Colleges, math associations, and professional organizations can create shared materials with up-to-date information and infographics on alignment of math sequences with various majors and careers to support conversations about refining admissions criteria.

What high schools can do:

Expand math offerings to include rigorous and relevant options aligned with college majors and careers. For example, students seeking to pursue most STEM majors would focus on the pathway to calculus, while students with an interest in the social sciences could pursue statistics and/or data science courses.

Articulate college counseling with academic counseling as early as the transition to middle school. This would raise awareness of majors and careers to support students’ choices and ensure that no students are placed into dead-end sequences or prematurely tracked out of STEM opportunities.

Attend to students’ mental health and well-being. High schools can consider ways of minimizing the emphasis on acceleration, such as setting limits on the number of AP courses offered or the number students are allowed to take.