The Calculus I Student

Preliminary results from the national survey of Calculus I conducted by the MAA, Fall, 2010, *Characteristics of Successful Programs in College Calculus*, NSF DRL REESE grant #0910240

Results available at http://www.maa.org/columns/launchings/launchings_05_11.html
Demographics and Aspirations

• 55% are men, 45% women
• 97% are full-time students
• 75% are freshmen, 14% sophomores, 6% juniors
• 88% were born in the United States; for 85%, English is the primary language spoken at home; 93% graduated from high school in the US
• 76% are White, 14% Asian, 5% Black (versus 73% White, 9% Asian, 12% Black)
• 10% are Hispanic (versus 12% Hispanic)
Demographics and Aspirations

• Father’s education:
  • 79% at least some college (67%);
  • 61% at least a Bachelor’s degree (53%);
  • 31% at least some graduate school (25%)

• Mother’s education
  • 82% at least some college (69%);
  • 58% at least a Bachelor’s degree (55%);
  • 22% at least some graduate school (22%)

• 53% expect at least some difficulty paying for college (versus 65%)
Demographics and Aspirations

• Career goal
  • Medical/Biological Sciences: 30% (versus 11%)
  • Engineering: 30% (versus 10%)
  • Business: 8% (versus 14%)
  • Physical Sciences: 6% (versus 3%)
  • Computer Science: 5% (versus 1%)
  • Science or Mathematics Teaching: 3%
  • Social Sciences: 2% (versus 12%)
  • Mathematics: 1% (versus 1%)
  • Undecided: 9% (versus 7%)

• 81% are certain of what they want to do after college
Preparation

• 62.4% took the SAT exams. For Critical Reading, the mean score was 611 with a standard deviation of 86 and an interquartile range of [550,670]. For Mathematics, the mean score was 652 with a standard deviation of 76 and an interquartile range of [610,700].

• 62.5% took the ACT exams. For Mathematics, the mean score was 28.5 with a standard deviation of 4.3 and an interquartile range of [26,31].
Preparation

- 68% took a calculus class in high school. Of these students:
  - 56% took an Advanced Placement AB course
  - 12% took an Advanced Placement BC course
  - 33% took the Advanced Placement AB or BC exam and earned a 3 or higher
  - 4% studied calculus in an International Baccalaureate program
  - 61% earned an A in their high school calculus course
  - 13% took AP Statistics
Attitudes

• 95% agree with the statement: “I believe I have the knowledge and abilities to succeed in this course.”

• 90% agree with the statement: “I am confident in my mathematical abilities.”

• 89% agree with the statement: “The process of solving a problem that involves mathematical reasoning is a satisfying experience.”

• 83% agree with the statement: “I enjoy doing mathematics.”

• 65% would want to continue studying mathematics even if it was not required for their major
Attitudes

- The combined amount of time that they expect to spend in studying each week for all of their classes is
  - 0–10 hours: 19%;
  - 11–20 hours: 45%;
  - 21–30 hours: 21%;
  - > 30 hours: 15%
- 58% expect to earn an A in this course, and 94% expect to earn at least a B
- 69% expect to continue and take Calculus II
Final Grades

A: 22%,
B: 28%,
C: 23%,
D, F, or withdrew: 27%