

Characteristics of Successful Programs in College Calculus - Student Start

You have been selected to be part of a national survey of calculus instruction in colleges and universities across the United States. This research project is conducted by the Mathematical Association of America. Your answers are important to help us determine who is taking calculus, why they are taking it, and what mathematics background they bring to this course. At the end of this term, you will be asked to reflect on your experiences in this course.

Your participation is voluntary and does not affect your course grade. At the end of the survey you will have the option of providing us with your e-mail address. If necessary, your e-mail will allow us to arrange a telephone call with you to clarify any responses that are unclear. All information that you submit will be held in complete confidence. All personal information such as your e-mail address and telephone number will be disposed of prior to analysis. By continuing on to complete the survey you consent to participate in this study.

If you have any questions about this project, please call Olga Dixon at (202)-319-8498 or via e-mail odixon@maa.org.

I. High School Experience

1. My placement in calculus was determined by *(Mark all that apply)*:

- My ACT or SAT score
- My score on a placement exam
- My successful completion of prerequisite courses
- My AP exam score
- Don't know

2. Did you take the SAT exam?

Yes

No

3. My SAT scores were:

SAT critical reading

SAT mathematics

4. Did you take the SAT Subject Test in mathematics?

Yes

No

5. What was your score on the:

SAT Subject Test, Mathematics Level 1

SAT Subject Test, Mathematics Level 2

6. Did you take the ACT exam?

Yes

No

7. My ACT scores were:

Composite score

Mathematics score

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8. My mathematics courses in high school have prepared me to:

	Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
complete calculations without a calculator	10	10	10	10	10	10
solve word problems	10	10	10	10	10	10
factor expressions	10	10	10	10	10	10
solve equations	10	10	10	10	10	10
solve inequalities	10	10	10	10	10	10

9. The teacher of my last mathematics course in high school:

	Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
lectured most of the time	10	10	10	10	10	10
primarily showed us how to get answers to specific questions	10	10	10	10	10	10
frequently had us work in groups	10	10	10	10	10	10
frequently had us solve challenging problems	10	10	10	10	10	10
cared that I was successful in the course	10	10	10	10	10	10

10. Please select the most appropriate answer:

	Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
I am comfortable in using a graphing calculator	10	10	10	10	10	10
I am comfortable in using a computer algebra system (e.g., Maple, MATLAB)	10	10	10	10	10	10

11. My high school mathematics teachers used an electronic response system (such as clickers) to poll students during class

Yes

No

12. In high school I was allowed to use graphing calculators on exams

Always

Sometimes

Never

13. In high school I was allowed to use calculators that performed symbolic operations on exams (e.g., TI-89, TI-92)

Yes

No

Sometimes

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14. Which of the following calculus courses were offered at your high school? (Mark all that apply)

- Calculus (Non AP)
- AP Calculus AB
- AP Calculus BC
- International Baccalaureate (IB) Calculus
- Online calculus course
- Calculus course taught at my high school for which students also received two-year college credit
- Calculus course taught at a two-year college for which students also received high school credit
- Calculus course taught at my high school for which students also received four-year college or university credit
- Calculus course taught at a four-year college or university for which students also received high school credit

15. For each (Non-AP) mathematics course listed below that you took in high school, please indicate the course level, your grade in school when taking the exam, and your final grade (If you did not take a particular course, leave that row blank)

	Course Level	Grade Level in High School	Final Grade
Geometry	<input type="text" value="6"/>	<input type="text" value="6"/>	<input type="text" value="6"/>
Algebra II	<input type="text" value="6"/>	<input type="text" value="6"/>	<input type="text" value="6"/>
Integrated Math	<input type="text" value="6"/>	<input type="text" value="6"/>	<input type="text" value="6"/>
Pre-Calculus	<input type="text" value="6"/>	<input type="text" value="6"/>	<input type="text" value="6"/>
Trigonometry	<input type="text" value="6"/>	<input type="text" value="6"/>	<input type="text" value="6"/>
Statistics (Non AP)	<input type="text" value="6"/>	<input type="text" value="6"/>	<input type="text" value="6"/>
Calculus (Non AP)	<input type="text" value="6"/>	<input type="text" value="6"/>	<input type="text" value="6"/>
Other course taken senior year	<input type="text" value="6"/>	<input type="text" value="6"/>	<input type="text" value="6"/>

16. Did you take any AP Calculus or AP Statistics in high school?

- Yes
- No
- I don't know

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17. For each of the following AP course that you took in high school, please indicate the score you earned on the exam, your grade in school when taking the exam, what grade you earned in the course, and the gender of the teacher

	AP Exam Score (if taken)	Grade Level in High School	Final Grade	Gender of Teacher
Calculus AB	<input type="text" value="6"/>	<input type="text" value="6"/>	<input type="text" value="6"/>	<input type="text" value="6"/>
Calculus BC	<input type="text" value="6"/>	<input type="text" value="6"/>	<input type="text" value="6"/>	<input type="text" value="6"/>
AP Statistics	<input type="text" value="6"/>	<input type="text" value="6"/>	<input type="text" value="6"/>	<input type="text" value="6"/>

18. Did you take a calculus course in COLLEGE prior to this one?

Yes

No

19. Where was your previous college calculus course taken?

- At this college or university
- At another 4-year college or university
- At another 2-year college

20. What was the delivery mode of the calculus course you completed in college prior to this one? *(Mark all that apply)*

- Online
- Through correspondence
- Face-to-face with an instructor

21. Why are you taking this course again? *(Mark all that apply)*

- It did not count toward the credits I need
- I passed, but I need/want a higher grade (e.g., for my major)
- I did not pass the course
- I dropped the class
- I wanted to get a better grade
- I wanted to improve my understanding of calculus
- My college advisor told me to

22. Did you take a pre-calculus course in COLLEGE prior to this course?

Yes

No

23. Where was your previous college precalculus course taken?

- At this college or university
- At another 4-year college or university
- At another 2-year college

24. What was the delivery mode of the precalculus course you completed in college prior to this one? (*Mark all that apply*)

- Online
- Through correspondence
- Face-to-face with an instructor

25. What grade do you expect in this calculus course?

A

B

C

D

F

26. Do you intend to take Calculus II?

Yes

No

I don't know yet

27. How important is a good grade in this course in influencing your decision whether or not to take Calculus II?

Very important

Important

Slightly Important

Slightly Unimportant

Unimportant

Not important at all

28. Is Calculus II required for your major?

Yes

No

I don't know

II. Attitude Toward Mathematics

29. Please select the most appropriate answer.

	Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
I believe I have the knowledge and abilities to succeed in this course.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am confident in my mathematical abilities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I understand the mathematics that I have studied.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I enjoy doing mathematics.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

30. If I take another calculus course after this one, it will be because (Mark all that apply)

- it is required
- I want to

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In the following questions, choose number:

- 1 if you completely agree with option A
- 2 if you do not completely agree with option A, but agree with option A more than option B
- 3 if you do not completely agree with option B, but agree with option B more than option A
- 4 if you completely agree with option B

31. Please select the most appropriate response below:

	A Not at all certain	2	3	B Very certain
	1	2	3	4
How certain are you in what you intend to do after college?	jq	jq	jq	jq

32. Please select the most appropriate answer below:

	A I try hard to figure it out on my own	2	3	B I quickly seek help or give up trying
	1	2	3	4
When experiencing a difficulty in my math class:	jq	jq	jq	jq

33. Please select the most appropriate answer below:

	A a natural part of solving the problem	2	3	B an indication of my weakness in mathematics
	1	2	3	4
For me, making unsuccessful attempts when solving a mathematics problem is:	jq	jq	jq	jq

34. Please select the most appropriate answer below:

	A solve specific kinds of problems	2	3	B make connections and form logical arguments
	1	2	3	4
My success in mathematics PRIMARILY relies on my ability to:	jq	jq	jq	jq

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35. Please select the most appropriate answer below:

	A	2	3	B
	I understand the covered material			I can do things the way the teacher wants
	1			4
My score on my mathematics exam is a measure of how well	jq	jq	jq	jq

36. Please select the most appropriate answer below:

	A	2	3	B
	I would never take another mathematics course			I would continue to take mathematics
	1			4
If I had a choice,	jq	jq	jq	jq

37. Please select the most appropriate answer below:

	A	2	3	B
	memorize it the way it is presented			make sense of the material, so that I understand it
	1			4
When studying Calculus I in a textbook or in course materials, I tend to:	jq	jq	jq	jq

38. Please select the most appropriate answer below:

	A	2	3	B
	understand underlying mathematical ideas			find answers to problems
	1			4
When solving mathematics problems, graphing calculators or computers help me to:	jq	jq	jq	jq

39. Please select the most appropriate answer below:

	A	2	3	B
	work problems so students know how to do them			help students learn to reason through problems on their own
	1			4
The primary role of a mathematics instructor is to:	jq	jq	jq	jq

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40. Please select the most appropriate answer:

	Strongly Disagree	Disagree	Mildly Disagree	Mildly Agree	Agree	Strongly Agree
Mathematics instructors should show students how mathematics is relevant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

41. Please select the most appropriate answer for each of the following.

	Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
If I am unable to solve a problem within a few minutes, it is an indication of my weakness in mathematics.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mathematics is about getting exact answers to specific problems.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The process of solving a problem that involves mathematical reasoning is a satisfying experience.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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III. Demographic Information

42. Please indicate whether each of the following was born in the U.S.:

	Yes	No
You	<input type="checkbox"/>	<input type="checkbox"/>
Male Parent or Guardian	<input type="checkbox"/>	<input type="checkbox"/>
Female Parent or Guardian	<input type="checkbox"/>	<input type="checkbox"/>

43. What was the highest level of education for your male parent or guardian?

- Did not finish high school
- High school
- Some college
- Four years of college
- Graduate school

44. What was the highest level of education for your female parent or guardian?

- Did not finish high school
- High school
- Some college
- Four years of college
- Graduate school

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* 45. What was your home zip code at the time you graduated from high school? *If you graduated from a high school outside the U.S., enter 00000*

* 46. What is your birth date?

MM DD YYYY

Enter numbers as indicated >

 / /

47. Do the following people see you as a person who is good at mathematics?

	Not at all					Very much	
	1	2	3	4	5	6	
Yourself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Parents/Relatives	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
High school mathematics teacher	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Friends	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

48. What is your gender?

Male Female

49. What is your race? (Mark all that apply)

- White Pacific Islander
- Black American Indian or Alaska Native
- Asian
- Other (please specify)

50. Are you of Hispanic origin?

Yes

No

51. Was English the primary language spoken in your household?

Yes

No

52. What year are you in college?

Freshmen

Junior

Graduate
Student

Sophomore

Senior

Other

53. What is your current type of college enrollment?

Full-time

Part-time

54. To what degree was your home environment supportive of your studying math?

Not at all

Somewhat

Strongly

Very Strongly

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55. Who encouraged you to take mathematics classes? (Mark all that apply.)

- | | | |
|---|---|--|
| <input type="checkbox"/> No One | <input type="checkbox"/> Siblings | <input type="checkbox"/> Math Teacher |
| <input type="checkbox"/> Mother/Female Guardian | <input type="checkbox"/> Other Relative | <input type="checkbox"/> Other Teacher |
| <input type="checkbox"/> Father/Male Guardian | <input type="checkbox"/> School Counselor | <input type="checkbox"/> Coach |

56. Where did you attend high school?

American school in the United States

American school abroad

Other (please specify)

57. Approximately how many hours per week do you expect to work at a job this semester/term?

- | | | |
|-------------------------------|--------------------------------|---------------------------------------|
| <input type="checkbox"/> 0 | <input type="checkbox"/> 11-15 | <input type="checkbox"/> More than 30 |
| <input type="checkbox"/> 1-5 | <input type="checkbox"/> 16-20 | |
| <input type="checkbox"/> 6-10 | <input type="checkbox"/> 21-30 | |

58. Approximately how many hours per week do you expect to participate in organized extracurricular activities such as sports, college paper, or clubs this semester/term?

- | | | |
|-------------------------------|--------------------------------|---------------------------------------|
| <input type="checkbox"/> 0 | <input type="checkbox"/> 11-15 | <input type="checkbox"/> More than 30 |
| <input type="checkbox"/> 1-5 | <input type="checkbox"/> 16-20 | |
| <input type="checkbox"/> 6-10 | <input type="checkbox"/> 21-30 | |

59. Approximately how many hours per week do you expect to spend preparing for your classes this semester/term (studying, reading, writing, doing homework or lab work, analyzing data, rehearsing, or other academic activities)?

- | | | |
|-------------------------------|--------------------------------|---------------------------------------|
| <input type="checkbox"/> 0 | <input type="checkbox"/> 11-15 | <input type="checkbox"/> More than 30 |
| <input type="checkbox"/> 1-5 | <input type="checkbox"/> 16-20 | |
| <input type="checkbox"/> 6-10 | <input type="checkbox"/> 21-30 | |

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Concerning Your Career Plans:

60. Which of the following BEST describes your current career goal?

61. Please select the appropriate response for each of the following:

	Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
I am anticipating difficulty paying for college.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In order to succeed in calculus at a college or university, I must have taken it before.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

62. Optional: We may want to contact you to ask follow-up questions about your math-related experiences. All communications will be kept in the strictest confidence and your email will NOT be disclosed to any third party.

Your email address: