Report on Senior Surveys for Academic Year 2019-2020

Survey of Undergraduate Degree Applications for

Aug 2019, Dec 2019 & May 2020 Graduation Dates

Results for Computer Science in Literature, Science, & the Arts (CS-LSA)

Produced by
The Office of Student Affairs
University of Michigan, College of Engineering

Tuesday, July 14, 2020

Purpose and Approach

Each year, the College of Engineering (CoE) conducts a Senior Survey of degree applicants in our undergraduate programs. The Office of Student Affairs distributes, collects, and processes the surveys on behalf of the undergraduate programs. The survey's purpose is to provide departments with assessment data from recent graduates. When combined with other types of assessment data, results from the annual senior survey can help departments identify strengths in their undergraduate programs and opportunities for improvement.

Methods

Identifying Recipients

Queries into U-M's online system for submission of degree applications identified CoE and Computer Science in Literature, Sciences, and Arts degree applications. Each semester, a query identified the degree applicants for the current term, which became the list of survey recipients for the semester. Each degree applicant's official U-M email address was compiled into the address list.

Distribution and Collection

The Office of Student Affairs sent email invitations to every CoE degree applicant about four to six weeks before the end of the semester. An email reminder was sent once, a week before closing the survey. As an incentive to complete the survey, respondents who completed the survey were entered in a drawing to win several $500 gift cards to U-M Computer Showcase. Response rates by survey year are in the graph on the next page.

Analysis

Analysis has been completed only for fixed-response items. Fixed-response items are questions on which respondents were forced to choose from fixed, existing alternatives similar to a multiple-choice test.

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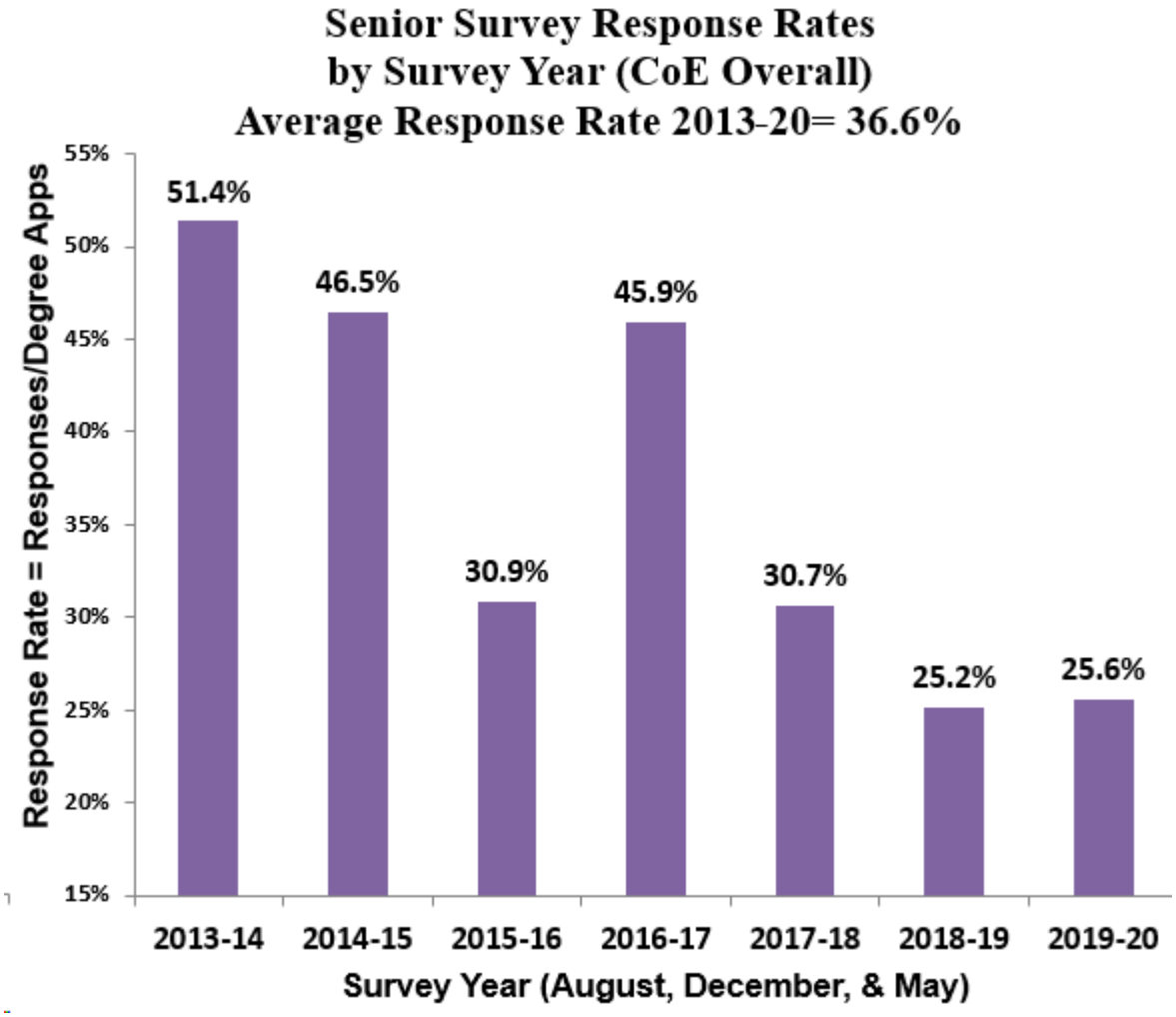
Analysis (continued)

Free-response items are questions that allow the recipient to compose their own response, similar to a short-answer test. To allow each reader of this report to interpret degree applicants' comments for themselves, comments are listed in the reports in alphabetical order by question. The comments are verbatim, with the exception of replacing the names of individuals with dashes (e.g., "Dr. John Smith" is listed as "Dr. ---- ----"). Comments are listed in the reports for specific programs, but not in the report for the College of Engineering Overall.



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Results

Responses from degree applications in the semester(s) and program(s) listed above	73
Degree applications from students in the semester(s) and program(s) listed above:	420
Response Rate (responses/ degree applications):	17.4%
Degrees granted to undergraduates in the semester(s) and program(s) listed above:	397

Note: Response Ratios (below) are calculated for respondents to that particular question.

PART I. EDUCATIONAL BACKGROUND

1. How did you enter the U-M College of Engineering or CSLSA? As a:

	Number of Responses	Response Ratio
First year student (freshman), first time in college	58	79%
Transfer student from a two-year college	2	3%
Transfer student from a four-year college	10	14%
Transfer student from another U-M school or college	3	4%
Totals	73	100%

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2. What is your undergraduate major? (Check all that apply)

	Number of Responses	Response Ratio
Aerospace Engineering	0	0%
Biomedical Engineering	0	0%
Chemical Engineering	0	0%
Civil Engineering	0	0%
Climate and Space Sciences and Engin	0	0%
Computer Engineering	0	0%
Computer Science Engineering	0	0%
Computer Science LSA	73	100%
Data Science	0	0%
Electrical Engineering	0	0%
Engineering Physics	0	0%
Environmental Engineering	0	0%
Industrial and Operations Engineering	0	0%
Materials Science and Engineering	0	0%
Mechanical Engineering	0	0%
Naval Architecture and Marine Engineering	0	0%
Nuclear Engineering and Radiological Sciences	0	0%
Other (please specify):	15	21%
Totals	73	100%

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3. When did you decide on your engineering major?

		Number of Responses	Response Ratio
Prior to first year (=0)		17	24%
First year (=1)		18	25%
Second year (=2)		24	33%
Third year (=3)		13	18%
Mean = 1.5	Totals	72	100%

4. Will you complete a minor from the College of Engineering or from the College of Literature, Science, and the Arts?

		Number of Responses	Response Ratio
No		54	74%
Yes (please specify):		19	26%
	Totals	73	100%

5. How many credits did you take in an average semester?

		Number of Responses	Response Ratio
Less than 12 credits/semester		0	0%
12-14 credits/semester		26	36%
15-17 credits/semester		45	63%
18+ credits/semester		1	1%
	Totals	72	100%

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PART II. CURRICULUM

6. How well did your high school science and math courses prepare you for your studies at U-M?

		Number of Responses	Response Ratio
Excellent Preparation (=5)		13	21%
Good Preparation (=4)		30	49%
Adequate Preparation (=3)		14	23%
Unsatisfactory Preparation (=2)		3	5%
No Preparation (=1)		1	2%
Mean = 3.8	Totals	61	100%

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7. How well did the following courses at U-M prepare you for your courses in engineering? (Select "N/A" (Not Applicable) for any categories in which you did not take classes at U-M.)

The percentage is the fraction of respondents giving the specific response to the given question. In bold is number of respondents.	5 = Excellent Preparation	4 = Good Preparation	3 = Adequate Preparation	2 = Unsatisfactory Preparation	1 = No Preparation	N/A = Not Applicable	Response Ratio **Total Responses** **Mean**
First Year Math (e.g., 105, 115/116)	8% **5**	22% **13**	17% **10**	2% **1**	0% **0**	52% **31**	100% **60** **3.8**
Sophomore Math (e.g., 214/215/216)	2% **1**	18% **11**	17% **10**	2% **1**	2% **1**	60% **36**	100% **60** **3.4**
Chemistry (e.g., 125/126/130 or 210/211)	0% **0**	0% **0**	0% **0**	0% **0**	0% **0**	0% **0**	100% **0**
Physics (e.g., 140/240)	0% **0**	0% **0**	0% **0**	0% **0**	0% **0**	0% **0**	100% **0**
Intro to Computers and Programming (ENG 101)	18% **11**	5% **3**	3% **2**	0% **0**	2% **1**	72% **43**	100% **60** **4.4**
Intro to Engineering (ENG 100)	0% **0**	2% **1**	2% **1**	0% **0**	2% **1**	95% **57**	100% **60** **2.7**
College Writing (English 125)	7% **4**	17% **10**	28% **17**	3% **2**	7% **4**	38% **23**	100% **60** **3.2**

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8. Please rate how important you predict the following competencies and attitudes will be to you in your PROFESSIONAL CAREER.

The percentage is the fraction of respondents giving the specific response to the given question. In bold is number of respondents.	5 = Extremely Important	4 = Quite Important	3 = Somewhat Important	2 = Slightly Important	1 = Not at all Important	Response Ratio **Total Responses** **Mean**
Math, science and engineering skills	58% **35**	33% **20**	7% **4**	0% **0**	2% **1**	100% **60** **4.5**
Ability to design and conduct experiments	23% **14**	28% **17**	27% **16**	18% **11**	3% **2**	100% **60** **3.5**
Ability to analyze and interpret data	60% **36**	27% **16**	10% **6**	3% **2**	0% **0**	100% **60** **4.4**
Ability to design a system, component or process	55% **33**	35% **21**	10% **6**	0% **0**	0% **0**	100% **60** **4.4**
Ability to function on a team	75% **45**	22% **13**	3% **2**	0% **0**	0% **0**	100% **60** **4.7**
Engineering problem solving skills	72% **43**	22% **13**	7% **4**	0% **0**	0% **0**	100% **60** **4.6**
Understanding of professional and ethical responsibility	57% **33**	21% **12**	17% **10**	5% **3**	0% **0**	100% **58** **4.3**
Written communication skills	44% **26**	37% **22**	14% **8**	5% **3**	0% **0**	100% **59** **4.2**
Oral communication skills	59% **35**	32% **19**	8% **5**	0% **0**	0% **0**	100% **59** **4.5**

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8. Please rate how important you predict the following competencies and attitudes will be to you in your PROFESSIONAL CAREER. (continued)

The percentage is the fraction of respondents giving the specific response to the given question. In bold is number of respondents.	5 = Extremely Important	4 = Quite Important	3 = Somewhat Important	2 = Slightly Important	1 = Not at all Important	Response Ratio **Total Responses** **Mean**
Understanding of the social, economic and environmental impact of my work	24% **14**	39% **23**	32% **19**	5% **3**	0% **0**	100% **59** **3.8**
Ability to continue formal or informal learning	59% **35**	27% **16**	10% **6**	2% **1**	2% **1**	100% **59** **4.4**
Knowledge of contemporary issues that affect my work	41% **24**	44% **26**	8% **5**	7% **4**	0% **0**	100% **59** **4.2**
Ability to use modern engineering techniques, skills & tools	58% **34**	32% **19**	8% **5**	2% **1**	0% **0**	100% **59** **4.5**

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9. Please rate how well you feel your UNDERGRADUATE PROGRAM at the University of Michigan prepared you in the following compentencies and attitudes.

The percentage is the fraction of respondents giving the specific response to the given question. In bold is number of respondents.	5 = Excellent Preparation	4 = Good Preparation	3 = Adequate Preparation	2 = Unsatisfactory Preparation	1 = Poor Preparation	Response Ratio **Total Responses** **Mean**
An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	47% **27**	47% **27**	5% **3**	2% **1**	0% **0**	100% **58** **4.4**
An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	36% **21**	38% **22**	14% **8**	10% **6**	2% **1**	100% **58** **4**
An ability to communicate effectively with a range of audiences	36% **21**	33% **19**	21% **12**	10% **6**	0% **0**	100% **58** **3.9**
An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental and societal contexts	23% **13**	42% **24**	19% **11**	12% **7**	4% **2**	100% **57** **3.7**

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The percentage is the fraction of respondents giving the specific response to the given question. In bold is number of respondents.	5 = Excellent Preparation	4 = Good Preparation	3 = Adequate Preparation	2 = Unsatisfactory Preparation	1 = Poor Preparation	Response Ratio **Total Responses** **Mean**
Ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	47% **27**	39% **22**	12% **7**	2% **1**	0% **0**	100% **57** **4.3**
An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	40% **23**	33% **19**	23% **13**	4% **2**	0% **0**	100% **57** **4.1**
An ability to acquire and apply new knowledge as needed, using appropriate learning strategies	53% **30**	37% **21**	9% **5**	2% **1**	0% **0**	100% **57** **4.4**

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10. How well were the courses in your curriculum integrated with each other (e.g., how well did prerequisites prepare you for subsequent courses)?

	Number of Responses	Response Ratio
Excellent Integration (=5)	13	22%
Good Integration (=4)	36	60%
Adequate Integration (=3)	10	17%
Unsatisfactory Integration (=2)	1	2%
No Integration (=1)	0	0%
Mean = 4 Totals	60	100%

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11. How important do you feel the following elements are for your learning in an engineering course?

The percentage is the fraction of respondents giving the specific response to the given question. In bold is number of respondents.	5 = Extremely Important	4 = Quite Important	3 = Somewhat Important	2 = Slightly Important	1 = Not at all Important	Response Ratio **Total Responses** **Mean**
Small class size	12% **7**	19% **11**	37% **22**	12% **7**	20% **12**	100% **59** **2.9**
Taught by a professor	40% **23**	31% **18**	17% **10**	3% **2**	9% **5**	100% **58** **3.9**
Quality of the lecture	76% **45**	19% **11**	2% **1**	2% **1**	2% **1**	100% **59** **4.7**
Quality of the discussions	31% **18**	25% **15**	17% **10**	24% **14**	3% **2**	100% **59** **3.6**
Quality of the homework and exams	49% **29**	44% **26**	5% **3**	2% **1**	0% **0**	100% **59** **4.4**
Accessibility of the professor	31% **18**	34% **20**	17% **10**	15% **9**	3% **2**	100% **59** **3.7**
Accessibility of the GSI	42% **25**	31% **18**	22% **13**	3% **2**	2% **1**	100% **59** **4.1**

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12. What was your best course in engineering? Why?

Number of Responses:	46

Responses listed on subsequent pages.

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PART III. CO-CURRICULAR ACTIVITIES

13. Which of the following activities/programs did you participate in during your time at U-M? (Check all that apply.)

	Number of Responses	Response Ratio
No participation in programs/activities outside of the requirements for my academic degree(s)	5	3%
Professional Societies (e.g., ASME, AIAA)	3	2%
Honor Societies (e.g., Eta Kappa Nu, Tau Beta Pi)	10	5%
Project Teams (e.g., Solar Car, Steel Bridge)	9	5%
Community Service	13	7%
Student Government (e.g., UMEC, MSA)	3	2%
Sports (Intercollegiate or Club)	12	6%
Music Performance (e.g., Marching Band, Glee Club)	8	4%
Religious Organizations	10	5%
Undergraduate Research Project	22	12%
Study Abroad	11	6%
Co-Op	3	2%
Internship	47	25%
Months or years experience in Co-op/Internship:	28	15%
Other	4	2%
Totals	188	100%

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14. Indicate below how many hours, on average, you worked (including work study) during the terms in which you were taking classes.

	Number of Responses	Response Ratio
No job	17	30%
0-10 hours/week	25	44%
10-20 hours/week	12	21%
20+ hours/week	3	5%
Totals	57	100%

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PART IV. SUPPORT SERVICES AND ENVIRONMENT

15. How satisfied were you with the following aspects of the DEPARTMENT in which you did your primary major?

The percentage is the fraction of respondents giving the specific response to the given question. In bold is number of respondents.	5 = Extremely Satisfied	4 = Satisfied	3 = Neutral	2 = Dissatisfied	1 = Extremely Dissatisfied	Response Ratio **Total Responses** **Mean**
Academic advising	9% **5**	48% **27**	29% **16**	13% **7**	2% **1**	100% **56** **3.5**
Career guidance from faculty	4% **2**	36% **20**	54% **30**	7% **4**	0% **0**	100% **56** **3.4**
Instruction by faculty	25% **14**	66% **37**	5% **3**	4% **2**	0% **0**	100% **56** **4.1**
Accessibility of faculty	7% **4**	54% **30**	25% **14**	13% **7**	2% **1**	100% **56** **3.5**
Contact with faculty	7% **4**	59% **33**	25% **14**	9% **5**	0% **0**	100% **56** **3.6**
Instruction by graduate students (GSI's)	21% **12**	46% **26**	25% **14**	7% **4**	0% **0**	100% **56** **3.8**
Accessibility of GSI's	23% **13**	61% **34**	14% **8**	2% **1**	0% **0**	100% **56** **4.1**
Percentage of teaching by faculty	13% **7**	63% **35**	18% **10**	7% **4**	0% **0**	100% **56** **3.8**
Contact with staff	11% **6**	52% **29**	34% **19**	4% **2**	0% **0**	100% **56** **3.7**
Sense of community among students	18% **10**	36% **20**	30% **17**	16% **9**	0% **0**	100% **56** **3.6**

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PART IV. SUPPORT SERVICES AND ENVIRONMENT

15. How satisfied were you with the following aspects of the DEPARTMENT in which you did your primary major? (continued)

The percentage is the fraction of respondents giving the specific response to the given question. In bold is number of respondents.	5 = Extremely Satisfied	4 = Satisfied	3 = Neutral	2 = Dissatisfied	1 = Extremely Dissatisfied	Response Ratio **Total Responses** **Mean**
Research opportunities	20% **11**	29% **16**	36% **20**	13% **7**	4% **2**	100% **56** **3.5**
Classroom facilities	23% **13**	52% **29**	20% **11**	5% **3**	0% **0**	100% **56** **3.9**
Lab facilities	16% **9**	45% **25**	34% **19**	4% **2**	2% **1**	100% **56** **3.7**
Computing facilities	30% **17**	57% **32**	5% **3**	7% **4**	0% **0**	100% **56** **4.1**
Overall experience with your department	16% **9**	64% **36**	13% **7**	4% **2**	4% **2**	100% **56** **3.9**