

# Undergraduate Research Academic Year 17

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# Undergraduate Research Academic Year 17

## Summary

The Office of Undergraduate Research is pleased to present our 2016-2017 academic year data. This is the third complete year of data collection in undergraduate research.

This report includes information on student counts and participation, taken from GradesFirst and the Fall 2017 Online Fact Book<sup>1</sup>. The faculty responses were received from an online survey administered May 1 – May 15, 2017. Additional methods to collect data include student event participation, student highlights in university news, and student self-disclosure to our department.

Through student participation in Office of Undergraduate Research activities and through submissions on the faculty survey, 2,207 undergraduate students were identified as having participated in undergraduate research, an increase of 50% from the 2,207 reported students in academic year 2016-2017.

## Student Participation

In academic year 2017, the University of Tennessee, Knoxville had 2,207 students who participated in undergraduate research or creative activities as reported to the Office of Undergraduate Research. Of the 22,139 undergraduate students enrolled at UT as reported in the Fall 2016 Online Fact Book<sup>1</sup>, only 9.97% reported their participation in undergraduate research, a 3.26% increase from last year's 6.71%. Of the 2,207 undergraduate students who participated, 44.41% were considered honors (participating in either the Chancellor's Honors Program or the Haslam Scholars Program), a 13.51% increase from last year's 27.9%.

The University of Tennessee saw an overall increase of 3.19% in undergraduate research with all respective colleges increasing their participation percentage from the following year.

*Table 1 Campus overview of undergraduate research participation*

<b>Majors</b>	<b>College UG Enrollment Fall 15</b>	<b>Count of UGR Participants</b>	<b>UGR Percent of Total Count</b>	<b>Average Overall GPA of UGR Participants</b>	<b>Count of UGR Participants in Honors</b>
CASNR	1,446	82	5.67%	3.34	37
Architecture & Design	369	82	22.22%	3.46	20
Arts & Sciences	6,918	638	9.22%	3.54	332
Business	4,696	97	2.07%	3.69	74
CCI	1,275	54	4.24%	3.53	23
CEHHS	2,548	108	4.24%	3.42	36
Engineering	3,148	959	30.46%	3.39	354
Nursing	619	155	25.04%	3.62	25
SW	184	14	7.61%	3.81	4
Undecided	936	18	1.92%	3.04	9
<b>Grand Total</b>	<b>22,139</b>	<b>2,207</b>	<b>9.97%</b>	<b>3.48</b>	<b>914</b>

Participation in undergraduate research varies widely within each college. Participation within each college by major is presented within the college section.

Average GPA of those who participated in undergraduate research lowered by .02 points from 3.50 in AY16 to 3.28 in AY17. In contrast, the count of UGR participants in honors increased by 503 students from 411 in AY16 to 914 in AY17.

## Faculty Survey Participation

In spring 2017, a survey of faculty was conducted to gain insight into the undergraduate research and creativity culture at the University of Tennessee, Knoxville. Of the 2,000 individuals who received the emailed survey request, 401 surveys were started. After data cleaning and preparation, 375 completed the multi-question instrument. Of the 375 respondents, 68 (18.13%) noted they did not mentor undergraduate students in research during Academic Year 2017, a decrease from the 208 (32.3%) individuals of the 643 respondent survey collected in Academic Year 2016. The overall engagement rate based on this sample survey is 81.86%.

Faculty were asked if during the past two years they had engaged in any of the following undergraduate research related activities (Table 3). The largest percentage of faculty (56.68%) engaged students in their own research project(s), a decrease of 0.56% from last year's 57.24%, remaining the most popular choice of engagement.

*Table 2 Faculty engagement in undergraduate research activities*

Answer	Response	Response Percentage by Question	Response Percentage by Sample Size
Engaged undergraduates on YOUR research project	174	26.01%	56.68%
Worked with undergraduates on a research project (not your own research)	126	18.83%	41.04%
Mentored undergraduate research students in a way not previously listed	89	13.30%	28.99%
Supervised an undergraduate thesis as chair	79	11.81%	25.73%
Taught a research intensive course (not strictly a methodologies course)	78	11.66%	25.41%
Taught a research methodologies course	51	7.62%	16.61%
Taught a senior capstone design course	31	4.63%	10.10%
Supervised an undergraduate thesis as a committee member	30	4.48%	9.77%
Taught an R designated course	11	1.64%	3.58%

Additional questions were asked as to the factors related to the decision to mentor and to the importance of benefits in undergraduate research mentoring (Table 4). The highest rated factor, with a mean of 2.44 was funding available to students. In contrast to Academic Year 2016, students' knowledge of basic research methodologies were found to be the most favorable among respondents with funding opportunities following close third and fourth as an influential factor. The converse is true for Academic Year 2017 with funding rated higher than students' knowledge of basic research methodologies.

*Table 3 Factors related to the decision to mentor*

<b>Question</b>	<b>Essential (1)</b>	<b>Very Important (2)</b>	<b>Somewhat Important (3)</b>	<b>Not Important (4)</b>	<b>Total</b>	<b>Mean</b>
Funding available for student stipends	75	77	73	65	290	2.44
Students' knowledge of basic research methodologies	64	100	95	32	291	2.33
Funding available for student supplies	58	81	81	71	291	2.57
Students' knowledge of discipline-specific research methodologies	52	89	110	39	290	2.47
Funding available for travel grants for undergraduates	34	82	104	70	290	2.72
Research/office space and computer availability for the student	28	69	109	85	291	2.86
Students knowledge of the IRB process (Institutional Review Board)	22	35	83	151	291	3.25

Next, faculty were asked to rate the importance of a set of commonly used benefits to undergraduate research mentors (Table 5). For UT faculty, the inclusion of undergraduate research mentoring in the promotion and tenure process remains the highest rated factor this year and the previous two academic years (mean=2.05), followed by travel funds for the faculty member and student to present their results at a conference or event outside of the university (mean=2.54). Differences between these means from AY16 and AY17 are 0.05 and .003 respectively.

*Table 4 Importance of Faculty benefits in undergraduate research mentoring*

<b>Question</b>	<b>Essential (1)</b>	<b>Very Important (2)</b>	<b>Somewhat Important (3)</b>	<b>Not Important (4)</b>	<b>Total</b>	<b>Mean</b>
Official recognition towards scholarly activity and/or service in the tenure/promotion process	102	95	59	29	285	2.05
Travel funds for faculty and students to present research results	49	93	85	59	286	2.54
Public recognition from my department head or dean	40	68	116	61	285	2.69
Travel funds to conduct research off site	40	63	89	93	285	2.82
Public recognition from the university	36	67	112	70	285	2.76
Compensation for mentoring undergraduate research	31	52	91	111	285	2.99
Release time for mentoring undergraduate research	29	84	79	93	285	2.83

Two questions were asked of the 68 Faculty who did not mentor undergraduate students in Academic Year 2017 including their reason for not mentoring and the importance of benefits if they chose to mentor. Of the 68 individuals, 17 did not respond to the question posed in Table 6. Regarding their decision to not mentor, faculty were limited to their top reason. Time constraints impose the biggest obstacle to a faculty's ability to mentor. This answer was also the top response of respondents to the AY16 survey (Table 6).

The importance of recognition towards scholarly activity and/or service in the tenure/promotion process topped the list of benefits that would be important if the faculty member chose to mentor (Table 7). This is consistent among those faculty who did participate in mentoring an undergraduate research student(s).

*Table 5 Faculty decision not to mentor undergraduate research in Academic Year 2017*

<b>Answer</b>	<b>%</b>	<b>Count</b>
I do not have any time available in my schedule to mentor undergraduate research projects.	41.18%	21
My area of research is not suitable for undergraduate research.	29.41%	15
I just started my faculty career at UT.	25.49%	13
I would rather invest my time working with graduate students.	23.53%	12
I was on sabbatical or leave for all or a portion of AY17.	11.76%	6
I do not think undergraduates are adequately prepared to conduct faculty-mentored research projects.	11.76%	6
I do not think there is adequate university recognition of faculty's efforts in mentoring undergraduate research projects.	11.76%	6
There is not adequate support available at the central or departmental level, or through my own research funds to facilitate undergraduate student involvement with me on research projects.	9.80%	5
I am unable to find undergraduates that are motivated to participate in my research.	9.80%	5
I do not have the space to support undergraduate research.	7.84%	4
Students were not able to make the commitment that I was expecting.	1.96%	1
<b>Total</b>	<b>100.00%</b>	<b>51</b>



*Table 6 Importance of benefits if non-mentoring Faculty choose to mentor undergraduate research*

<b>Question</b>	<b>Essential (1)</b>	<b>Very Important (2)</b>	<b>Somewhat Important (3)</b>	<b>Not Important (4)</b>	<b>Total</b>	<b>Mean</b>
Official recognition towards the tenure/promotion process	26	15	9	12	62	2.11
Release time for mentoring undergraduate research	13	18	15	16	62	2.55
Travel funds for you and the students to present research results	9	21	27	5	62	2.45
Public recognition from your department head or dean	6	15	26	15	62	2.81
Travel funds for you	5	15	28	14	62	2.82
Public recognition from the university	5	12	25	20	62	2.97
Compensation for mentoring undergraduate research	4	9	28	21	62	3.06

## College Summaries

The pages that follow document participation within each college, including the academic classification, honors population, and specific undergraduate research involvement.

## College of Agricultural Sciences and Natural Resources AY 2017

Out of 2,207 students who were flagged for participation in undergraduate research, eighty-two (82) were from CASNR. Of the 1,446 College of Agricultural Sciences and Natural Resources students reported in the Fall 2016 Online Fact Book<sup>1</sup>, only 5.67% participated in undergraduate research activities reported to the Office of Undergraduate Research. The breakdown among majors is included in Table 9.

Table 7 Undergraduate research within CASNR

Majors	Department Enrollment Fall 16	Count of UGR Participants	Average Overall GPA of UGR Participants	Count of UGR Participants in Honors
Animal Science (U/G)	549	24	3.64	17
Biosystems Engineering (U/G)	210	20	3.05	7
Environmental & Soil Sciences (U/G)	210	12	3.14	3
Wildlife & Fisheries Science (U/G)	242	8	3.50	3
Food Science And Technology (U/G)	150	7	3.77	5
Plant Sciences (U/G)	130	6	2.97	0
Forestry (U/G)	242	4	3.05	2
Agric Lead/Educ/Com (U/G)	70	1	3.16	0
<b>Grand Total</b>	<b>82</b>	<b>82</b>	<b>3.34</b>	<b>37</b>

\*Departments not listed had zero reported UGR participants in AY17.

The majority was seniors (43), with freshmen having the next highest number (15), followed by juniors (12), and sophomores (12). Thirty-seven (37) students were denoted as honors students.

Participation in undergraduate research by major is provided in Table 10 and is ordered by highest reported departmental participation. Departments not listed had zero reported UGR participants in AY17.

Table 8 Percentage participation in undergraduate research by major

Majors	Department Enrollment Fall 16	Count of UGR Participants	% UGR Participation
Animal Science (U/G)	549	24	4.37%
Biosystems Engineering (U/G)	210	20	9.52%
Environmental & Soil Sciences (U/G)	210	12	5.71%
Wildlife & Fisheries Science (U/G)	242	8	3.31%
Food Science And Technology (U/G)	150	7	4.67%
Plant Sciences (U/G)	130	6	4.62%
Forestry (U/G)	242	4	1.65%
Agric Lead/Educ/Com (U/G)	70	1	1.43%
<b>Grand Total</b>		<b>82</b>	<b>5.67%</b>

## College of Architecture and Design AY 2017

Out of 2,207 students who were flagged for participation in undergraduate research, eighty-two (82) were from the College of Architecture and Design. Of the 369 College of Architecture and Design students reported in the Fall 2016 Online Fact Book<sup>1</sup>, 22.22% participated in undergraduate research activities reported to the Office of Undergraduate Research, an increase of 10.55% from last year's 11.67%. The breakdown among majors is included in Table 12.

*Table 9 Undergraduate Research within Architecture and Design*

<b>Majors</b>	<b>Department Enrollment Fall 15</b>	<b>Count of UGR Participants</b>	<b>Average Overall GPA of UGR Participants</b>	<b>Count of UGR Participants in Honors</b>
Architecture (U/G)	253	77	3.45	17
Interior Design (U)	116	5	3.70	3
<b>Grand Total</b>		<b>82</b>	<b>3.56</b>	<b>20</b>

*\*Departments not listed had zero reported UGR participants in AY17.*

The majority were seniors (59), with juniors having the next highest number (9), with sophomores (7) and freshmen (7). Twenty (20) students were denoted as honors students.

Participation in undergraduate research by major is provided in Table 13 and is ordered by highest reported departmental participation. Departments not listed had zero reported UGR participants in AY17.

*Table 10 Percentage participation in undergraduate research by Architecture and Design major*

<b>Majors</b>	<b>Department Enrollment Fall 15</b>	<b>Count of UGR Participants</b>	<b>% UGR Participation</b>
Architecture (U/G)	253	77	30.43%
Interior Design (U)	116	5	4.31%
<b>Grand Total</b>		<b>82</b>	<b>34.74%</b>

## College of Arts & Sciences AY 2017

Out of 2,207 students who were flagged for participation in undergraduate research, 638 were from the College of Arts & Sciences. Of the 6,918 Arts & Sciences students reported in the Fall 2016 UT Online Fact Book<sup>1</sup>, 9.22% participated in undergraduate research activities reported to the Office of Undergraduate Research, an increase of 2.34% from last year's 6.88%. The breakdown among majors is included in Table 15.

*Table 11 Undergraduate research participation within Arts & Sciences*

<b>Majors</b>	<b>Department Enrollment 2016</b>	<b>Count of UGR Participants</b>	<b>Average Overall GPA of UGR Participants</b>	<b>Count of UGR Participants in Honors</b>
Biological Sciences (U)	539	187	3.57	100
Interdisciplinary Programs (U)	475	68	3.54	41
Psychology (U/G)	918	41	3.32	21
Graphic Design (U)	126	31	3.38	4
Political Science (U/G)	492	28	3.68	20
Music (U/G)	216	25	3.49	4
College Scholars Program (U)	32	24	3.73	20
Studio Art (U)	98	24	3.38	3
Pre-Professional Programs (U)	765	22	3.71	20
Physics (U/G)	183	20	3.43	13
Chemistry (U/G)	198	19	3.67	11
Geology and Environmental Study (U)	128	17	3.42	6
Mathematics (U/G)	190	17	3.58	10
Modern Foreign Language/Literature (U)	169	17	3.76	15
Anthropology (U/G)	225	15	3.51	7
English (U/G)	347	15	3.63	10
History (U/G)	229	14	3.52	7
Art (U/G)	283	11	3.16	0
Geography (U/G)	74	11	3.59	2
Sociology (U/G)	285	8	3.62	4
Classics (U)	28	6	3.74	4
Economics-Arts & Sciences (U)	130	6	3.61	4
Arts & Science Exploratory Track (U)	278	4	2.95	1
Philosophy (U/G)	54	3	3.51	2
Statistics-Arts & Sciences (U)	42	2	3.94	1
Medical Laboratory Science (U)	40	1	3.68	1

Religious Studies (U)	11	1	3.53	0
Theatre (U/G)	71	1	3.47	1
<b>Grand Total</b>		<b>638</b>	<b>3.54</b>	<b>332</b>

*\*Departments not listed had zero reported UGR participants in AY17.*

The majority were seniors (359), with freshmen having the next highest number (107), followed by juniors (76), and six freshmen (107), and other (1). Three hundred and thirty-two (332) students were denoted as honors students.

Participation in undergraduate research by major is provided in Table 16 and is ordered by highest reported departmental participation. Departments not listed had zero reported UGR participants in AY17.

*Table 12 Percentage participation in undergraduate research by Arts & Sciences major*

<b>Majors</b>	<b>Department Enrollment 2016</b>	<b>Count of UGR Participants</b>	<b>% UGR Participation</b>
Biological Sciences (U)	539	187	34.69%
Interdisciplinary Programs (U)	475	68	14.32%
Psychology (U/G)	918	41	4.47%
Graphic Design (U)	126	31	24.60%
Political Science (U/G)	492	28	5.69%
Music (U/G)	216	25	11.57%
College Scholars Program (U)	32	24	75.00%
Studio Art (U)	98	24	24.49%
Pre-Professional Programs (U)	765	22	2.88%
Physics (U/G)	183	20	10.93%
Chemistry (U/G)	198	19	9.60%
Geology and Environmental Stdy (U)	128	17	13.28%
Mathematics (U/G)	190	17	8.95%
Modern Foreign Lang/Liter (U)	169	17	10.06%
Anthropology (U/G)	225	15	6.67%
English (U/G)	347	15	4.32%
History (U/G)	229	14	6.11%
Art (U/G)	283	11	3.89%
Geography (U/G)	74	11	14.86%
Sociology (U/G)	285	8	2.81%

Classics (U)	28	6	21.43%
Economics-Arts & Sciences (U)	130	6	4.62%
Arts & Sci Exploratory Track (U)	278	4	1.44%
Philosophy (U/G)	54	3	5.56%
Statistics-Arts & Sciences (U)	42	2	4.76%
Medical Laboratory Science (U)	40	1	2.50%
Religious Studies (U)	11	1	9.09%
Theatre (U/G)	71	1	1.41%
<b>Grand Total</b>		<b>638</b>	<b>9.22%</b>

*\*Departments not listed had zero reported UGR participants in AY17.*

## Haslam College of Business AY 2017

Out of 2,207 students who were flagged for participation in undergraduate research, ninety-seven (97) were from the Haslam College of Business. Of the 4,696 Haslam College of Business students reported in the Fall 2016 Online Fact Book<sup>1</sup>, only 2.07 % participated in undergraduate research activities reported to the Office of Undergraduate Research, an increase of 1.27% from last year's 0.80%. The breakdown among majors is included in Table 18.

*Table 13 Undergraduate research within Business*

<b>Majors</b>	<b>Department Enrollment 2016</b>	<b>Count of UGR Participants</b>	<b>Average of Overall GPA of UGR Participants</b>	<b>Count of UGR Participants in Honors</b>
Supply Chain Management (U)	1599	17	3.59	9
Accounting (U/G)	678	15	3.78	13
Economics (U/G)	156	14	3.64	11
Finance (U)	531	14	3.73	13
Business Adm Exploratory Track (U)	818	13	3.62	11
Business Analytics (U/G)	368	10	3.85	8
Marketing (U)	1599	8	3.74	4
Management (U)	513	4	3.68	3
Human Resource Management (U/G)	513	2	3.62	2
<b>Grand Total</b>		<b>97</b>	<b>3.69</b>	<b>74</b>

*\*Departments not listed had zero reported UGR participants in AY17.*

The majority was seniors (45), with freshmen being the next largest group (28), sophomores at (19), juniors had (4), and others had (1). Seventy-four (74) students were denoted as honors students.

Participation in undergraduate research by major is provided in Table 19 and is ordered by highest reported departmental participation. Departments not listed had zero reported UGR participants in AY17.



*Table 14 Percentage participation in undergraduate research by Business major*

<b>Majors</b>	<b>Department Enrollment 2016</b>	<b>Count of UGR Participants</b>	<b>% of UGR Participation</b>
Supply Chain Management (U)	1599	17	1.06%
Accounting (U/G)	678	15	2.21%
Economics (U/G)	156	14	8.97%
Finance (U)	531	14	2.64%
Business Adm Exploratory Track (U)	818	13	1.59%
Business Analytics (U/G)	368	10	2.72%
Marketing (U)	1599	8	0.50%
Management (U)	513	4	0.78%
Human Resource Management (U/G)	513	2	0.39%
<b>Grand Total</b>		<b>97</b>	<b>2.07%</b>

## College of Communication and Information AY 2017

Out of 2,207 students who were flagged for participation in undergraduate research, fifty-four (54) were from the College of Communication and Information. Of the 1,275 College of Communication and Information students reported in the Fall 2016 Online Fact Book<sup>1</sup>, only 4.24% participated in undergraduate research activities reported to the Office of Undergraduate Research, an increase of 3.91% from last year's 0.33%. The breakdown among majors is included in Table 21.

*Table 15 Communication and Information student participation by activity combinations*

<b>Majors</b>	<b>Department Enrollment Fall 16</b>	<b>Count of UGR Participants</b>	<b>Average Overall GPA of UGR Participants</b>	<b>Count of UGR Participants in Honors</b>
Public Relations (U)	413	26	3.51	26
Journalism & Electronic Media (U)	410	14	3.68	14
Communication Studies (U)	430	11	3.36	11
Advertising (U)	413	3	3.66	3
<b>Grand Total</b>		<b>54</b>	<b>3.53</b>	<b>54</b>

*\*Departments not listed had zero reported UGR participants in AY17.*

All participating students were seniors (33), with freshmen second at (16), sophomores (3), and juniors (02). Fifty-four (54) students were denoted as honors students.

Participation in undergraduate research by major is provided in Table 22 and is ordered by highest reported departmental participation. Departments not listed had zero reported UGR participants in AY17.

*Table 16 Percentage participation in undergraduate research by Communication and Information major*

<b>Majors</b>	<b>Department Enrollment Fall 16</b>	<b>Count of UGR Participants</b>	<b>Average Overall GPA of UGR Participants</b>
Public Relations (U)	413	26	6.30%
Journalism & Electronic Media (U)	410	14	3.41%
Communication Studies (U)	430	11	2.56%
Advertising (U)	413	3	0.73%
<b>Grand Total</b>		<b>54</b>	<b>4.24%</b>

*\*Departments not listed had zero reported UGR participants in AY17.*

## College of Education, Health, and Human Science AY 2017

Out of 2,207 students who were flagged for participation in undergraduate research, hundred and eight (108) were from CEHHS. Of the 2,548 College of Education, Health, and Human Sciences students reported in the Fall 2016 Online Fact Book<sup>1</sup>, only 4.24% participated in undergraduate research activities reported to the Office of Undergraduate Research, an increase of 2.90% from last year's 1.34%. The breakdown among majors is included in Table 24.

Table 17 Undergraduate research within CEHHS

Majors	Department Enrollment Fall 16	Count of UGR Participants	Average Overall GPA of UGR Participants	Count of UGR Participants in Honors
Hotel, Restaurant, And Tourism (U)	220	25	3.13	0
Retail And Consumer Sciences (U)	220	24	3.17	0
Nutrition (U/G)	164	17	3.72	8
Kinesiology (U/G)	1427	15	3.71	10
Audiology/Speech Pathology (U)	348	8	3.61	4
Child and Family Studies (U/G)	279	8	3.89	7
Recreation /Sport Management (U/G)	1427	6	3.73	5
Ed Hlth Hum Sci Explorat Track (U)	110	3	2.26	1
Special Education (U)	348	2	3.56	1
<b>Grand Total</b>	<b>108</b>	<b>108</b>	<b>3.42</b>	<b>36</b>

\*Departments not listed had zero reported UGR participants in AY17.

The majority were seniors (73), with freshmen having the next highest number (15), followed by and sophomores (12), and juniors (8). Thirty-six (36) students were denoted as honors students.

Participation in undergraduate research by major is provided in Table 25 and is ordered by highest reported departmental participation. Departments not listed had zero reported UGR participants in AY17.

*Table 18 Percentage participation in undergraduate research by CEHHS major*

<b>Majors</b>	<b>Department Enrollment Fall 16</b>	<b>Count of UGR Participants</b>	<b>% UGR Participation</b>
Hotel, Restaurant, And Tourism (U)	220	25	11.36%
Retail And Consumer Sciences (U)	220	24	10.91%
Nutrition (U/G)	164	17	10.37%
Kinesiology (U/G)	1427	15	1.05%
Audiology/Speech Pathology (U)	348	8	2.30%
Child and Family Studies (U/G)	279	8	2.87%
Recreation /Sport Management (U/G)	1427	6	0.42%
Ed Hlth Hum Sci Explorat Track (U)	110	3	2.73%
Special Education (U)	348	2	0.57%
<b>Grand Total</b>		<b>108</b>	<b>4.24%</b>

## College of Engineering AY 2017

Out of 2,207 students who were flagged for participation in undergraduate research, nine hundred and fifty-nine (959) were from the College of Engineering. Of the 3,148 College of Engineering students reported in the Fall 2016 Online Fact Book<sup>1</sup>, 30.46% participated in undergraduate research activities reported to the Office of Undergraduate Research, an increase of 6.99% from last year's 23.47%. The breakdown among majors is included in Table 27.

Table 19 Undergraduate research within Engineering

Majors	Department Enrollment Fall 16	Count of UGR Participants	Average Overall GPA of UGR Participants	Count of UGR in Honors
Mechanical Engineering (U/G)	1180	207	3.36	62
Computer Science (U/G)	770	125	3.42	46
Chemical Engineering (U/G)	438	121	3.58	66
Civil Engineering (U/G)	293	91	3.20	15
Nuclear Engineering (U/G)	207	80	3.45	44
Electrical Engineering (U/G)	770	73	3.38	23
Industrial Engineering (U/G)	156	71	3.35	22
Biomedical Engineering (U/G)	1180	60	3.44	22
Materials Science & Engineer (U/G)	104	59	3.37	25
Aerospace Engineering (U/G)	1180	42	3.20	16
Computer Engineering (U/G)	770	25	3.41	11
Electrical Engineering (U)	770	5	3.45	2
<b>Grand Total</b>		<b>959</b>	<b>3.39</b>	<b>354</b>

\*Departments not listed had zero reported UGR participants in AY17.

The majority were seniors (689), with juniors having the next highest number (95), followed by sophomores (91) and one freshman (84). Three hundred fifty-four (354) students were denoted as honors students.

Participation in undergraduate research by major is provided in Table 28 and is ordered by highest reported departmental participation. Departments not listed had zero reported UGR participants in AY17.

*Table 20 Percentage participation in undergraduate research by Engineering major*

<b>Majors</b>	<b>Department Enrollment Fall 16</b>	<b>Count of UGR Participants</b>	<b>% of UGR Participation</b>
Aerospace Engineering (U/G)	1180	42	3.56%
Biomedical Engineering (U/G)	1180	60	5.08%
Chemical Engineering (U/G)	438	121	27.63%
Civil Engineering (U/G)	293	91	31.06%
Computer Engineering (U/G)	770	25	3.25%
Computer Science (U/G)	770	125	16.23%
Electrical Engineering (U)	770	5	0.65%
Electrical Engineering (U/G)	770	73	9.48%
Industrial Engineering (U/G)	156	71	45.51%
Materials Science & Engineer (U/G)	104	59	56.73%
Mechanical Engineering (U/G)	1180	207	17.54%
Nuclear Engineering (U/G)	207	80	38.65%
<b>Grand Total</b>		<b>959</b>	<b>30.46%</b>

## College of Nursing AY 2017

Out of 2,207 students who were flagged for participation in undergraduate research, one hundred and fifty-five (155) were from the College of Nursing. Of the 619 College of Nursing students reported in the Fall 2016 Online Fact Book<sup>1</sup>, 25.04% participated in undergraduate research activities reported to the Office of Undergraduate Research (Table 30), an increase of 7.68% from last year's 17.36%.

*Table 21 Undergraduate research within Nursing*

<b>Majors</b>	<b>Department Enrollment Fall 15</b>	<b>Count of UGR Participants</b>	<b>Average Overall GPA of UGR Participants</b>	<b>Count of UGR Participants in Honors</b>
Nursing (U)	619	155	3.81	25
<b>Grand Total</b>		<b>100</b>	<b>3.81</b>	<b>25</b>

*\*Departments not listed had zero reported UGR participants in AY17.*

All participating students were seniors (134), with (10) freshmen, (7) juniors, and (4) sophomores (0). Twenty-five (25) students were denoted as honors.

## College of Social Work AY 2017

Out of 2,207 students who were flagged for participation in undergraduate research, 14 were from the College of Social Work. Of the 184 College of Social Work students reported in the Fall 2016 Online Fact Book<sup>1</sup>, only 7.61% participated in undergraduate research activities reported to the Office of Undergraduate Research (Table 32), an increase of 4.00% from last year's 3.61%.

Table 22 Undergraduate research within Social Work

<b>Majors</b>	<b>Department Enrollment Fall 15</b>	<b>Count of UGR Participants</b>	<b>Average Overall GPA of UGR Participants</b>	<b>Count of UGR Participants in Honors</b>
Social Work (U)	184	14	3.04	4
<b>Grand Total</b>		<b>14</b>	<b>3.04</b>	<b>4</b>

\*Departments not listed had zero reported UGR participants in AY17.

All participating students were seniors (10), (2) were freshmen, (1) junior, and (1) sophomore. Four (4) students were denoted as honors.



## University Undecided AY 2017

Out of 2,207 students who were flagged for participation in undergraduate research, eighteen (18) were labeled University Undecided. Of the 936 University Undecided students reported in the Fall 2016 Online Fact Book<sup>1</sup>, only 0.85% participated in undergraduate research activities reported to the Office of Undergraduate Research (Table 34), an increase of 0.06% from last year's 0.79%.

Table 23 Undergraduate research within University Undecided

<b>Majors</b>	<b>Department Enrollment Fall 15</b>	<b>Count of UGR Participants</b>	<b>Average Overall GPA of UGR Participants</b>	<b>Count of UGR Participants in Honors</b>
University Exploratory Track (U)	936	13	2.89	8
University Undecided (U)	936	5	3.43	1
<b>Grand Total</b>		<b>18</b>	<b>3.04</b>	<b>9</b>

\*Departments not listed had zero reported UGR participants in AY17.

The majority were freshmen (8), seniors (5), other students (3), with both juniors and sophomore having (1). Nine (9) students were denoted as honors students.

## National Survey of Student Engagement Data

The National Survey of Student Engagement (NSSE) collects data regarding faculty mentored undergraduate research participation. Prior to 2011, UT administered the survey every year. After the 2011 survey, this cycle was changed to every three years, with the next data set available for 2014. Until 2011, question 7d was related to experiential learning activities including undergraduate research participation. Question 7d asked: Which of the following have you done or do you plan to do before you graduate from your institution? From 2004 to 2011 the follow-up question was ‘Work on a research project with a faculty member outside of course or program requirements.’ In 2014 the ordering of the questions changed as well as the follow-up question. The new question removed the requirement for the research to be completed outside of a course or program requirements. The new follow-up is ‘Work with a faculty member on a research project.’ Students are given the choice to answer whether they have completed a project or plan to complete a project while at UT. This change did not have an effect on the planned category but did increase the percentage of students who had reported completing a research project (Figure 1).

The Fall 2016 UT Online Fact Book<sup>1</sup> reported 6,091 enrolled seniors. In response to the NSSE survey 1,888 students (31%) identified they had worked with a faculty member on a research project during their time at UT. The freshman class includes both first-time freshman (4,719) and other freshman (1,337) students. 40% of these students (2,422) indicated their plans to conduct research with a faculty mentor at UT. 181 freshmen students or 3% indicated they had already worked with a faculty member on a research project during their short time at UT.

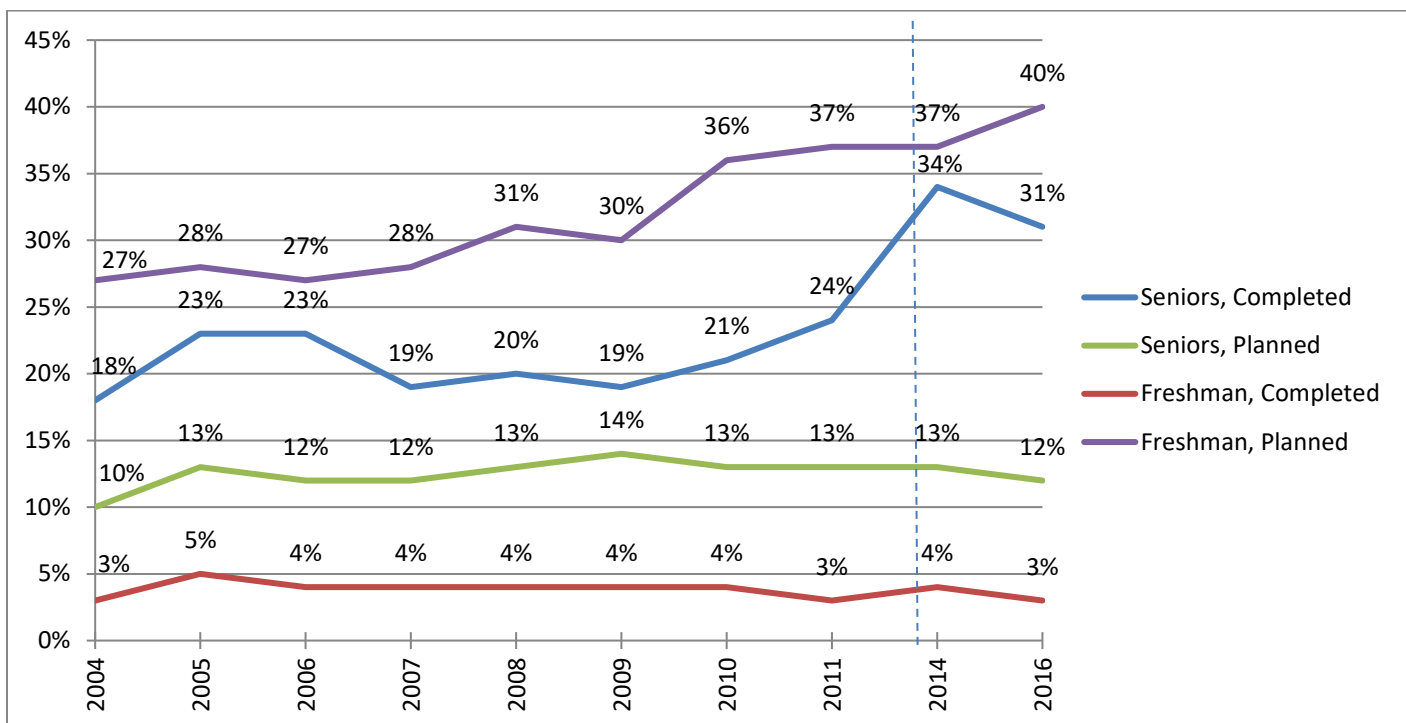


Figure 1 Responses to NSSE question on undergraduate research participation

NSSE provides a comprehensive report<sup>2</sup> of *Participation in High-Impact Practices by Student Characteristics* among Carnegie Classified Research Universities with very high research activity. For 2017, across all reporting institutions in this classification, 6% of freshmen reported having completed research with faculty and 26% of seniors reported the same response. In institutions with more than 20,000 undergraduates the response was 5% of freshmen and 20% of seniors. UT is below the average mark on comparative freshman participation and above average with senior participation (Table 36).

Table 24 NSSE 2017 High-Impact Practices, U.S. Summary Percentages by Institutional Characteristics

	<u>First-Year</u>	<u>Seniors (%)</u>
	<u>Students (%)</u>	
	<u>Research</u>	<u>Research</u>
	<u>with Faculty</u>	<u>with Faculty</u>
<b>Carnegie Classification</b>		
Research Universities (very high research activity)	6%	26%
Research Universities (high research activity)	5%	25%
Doctoral/Research Universities	5%	17%
Master's Colleges and Universities (larger programs)	4%	21%
Master's Colleges and Universities (medium programs)	5%	25%
Master's Colleges and Universities (smaller programs)	5%	24%
Baccalaureate Colleges-Arts & Sciences	6%	46%
Baccalaureate Colleges-Diverse Fields	6%	26%
<b>Control</b>		
Public	5%	23%
Private	5%	25%
<b>Undergraduate enrollment</b>		
Fewer than 1,000	8%	36%
1,000 - 2,499	6%	31%
2,500 - 4,999	6%	28%
5,000 - 9,999	5%	23%
10,000 - 19,999	5%	22%
20,000 or more	5%	20%
Overall	5%	24%
<i>Notes: Percentages weighted by sex, enrollment status, and institution size. Percentages are of students who responded "Done or in progress."</i>		



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<sup>1</sup> The Office of Institutional Research & Assessment. (n.d.). *Fact Book: 2016-2017*. Retrieved December 1, 2017, from The Office of Institutional Research & Assessment: <https://oira.utk.edu/factbook/archive>

<sup>2</sup> National Survey of Student Engagement. (n.d.). HIPs by Student and Institutional Characteristics. Retrieved December 29, 2017, from National Survey of Student Engagement: [http://nsse.iub.edu/2017\\_institutional\\_report/pdf/HIPTables/HIP.pdf](http://nsse.iub.edu/2017_institutional_report/pdf/HIPTables/HIP.pdf)