



UNDERGRADUATE
RESEARCH

Academic Year 2016 Participation Report



Undergraduate Research Academic Year 16

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Undergraduate Research Academic Year 16

Summary

The Office of Undergraduate Research is pleased to present our 2015-2016 academic year data. This is the second complete year of data collection in undergraduate research.

This report includes information on student counts and participation, taken from GradesFirst and the Fall 2015 Online Fact Book¹. The faculty responses were received from an online survey administered April 19 – May 12, 2016. 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, 1,468 undergraduate students were identified as having participated in undergraduate research, an increase of 103% from the 722 reported students in academic year 2014-2015. Despite the dramatic increase we expect that self-reporting has caused an underestimation of at least 900 additional students participating in undergraduate research. If we use the 2016 National Survey of Student Engagement (NSSE) report, which estimates approximately 43% of each class is interested in conducting or is conducting research, the expected participation number balloons to 9,000 students involved or desiring to be involved in the undergraduate research enterprise each year.

Our recommendations for improving the undergraduate research enterprise at UT are:

1. Identification and growth of undergraduate research assistants through incentivization in the workload, tenure, and promotion guidelines. The faculty reporting system, Elements, has been modified to allow for data collection.
2. Creation of a data management tool for student participation in undergraduate research and other high impact practices which would in turn feed the proposed co-curricular transcript initiative in Student Life.
3. Increased partnership with the College Scholars Program, Chancellors Honors Program, and the Haslam Scholars Program, to ensure all students are reporting their undergraduate research involvement.
4. Promotion of the 'R' designation option for research intensive courses in order to capture students who have completed course-based research projects.
5. Adoption of the co-curricular transcript as proposed by the Office of Student Life.
6. Development of an undergraduate innovation center to support increased involvement in the discovery and entrepreneurship enterprise.

Student Participation

In academic year 2016, the University of Tennessee, Knoxville had 1,468 students who participated in undergraduate research or creative activities as reported to the Office of Undergraduate Research. Of the 21,863 undergraduate students enrolled at UT reported in the Fall 2015 Online Fact Book¹, only 6.71% reported their participation in undergraduate research. Of the 1,468 undergraduate students who participated, 27.9% were considered honors (participating in either the Chancellor's Honors Program or the Haslam Scholars Program).

Table 1 Campus overview of undergraduate research participation

| Majors | College UG Enrollment Fall 15 | Count of UGR Participants | UGR Percent of Total Count | Avg Overall GPA of UGR Participants | Count of UGR Participants in Honors |
|-----------------------|-------------------------------|---------------------------|----------------------------|-------------------------------------|-------------------------------------|
| CASNR | 1,472 | 61 | 4.14% | 3.22 | 18 |
| Architecture & Design | 360 | 42 | 11.67% | 3.49 | 11 |
| Arts & Sciences | 6,963 | 479 | 6.88% | 3.59 | 151 |
| Business | 4,501 | 36 | 0.80% | 3.64 | 24 |
| CCI | 1,217 | 4 | 0.33% | 3.73 | 3 |
| CEHHS | 2,606 | 35 | 1.34% | 3.43 | 8 |
| Engineering | 2,965 | 696 | 23.47% | 3.38 | 181 |
| Nursing | 576 | 100 | 17.36% | 3.56 | 14 |
| SW | 194 | 7 | 3.61% | 3.76 | 1 |
| Undecided | 1,009 | 8 | 0.79% | 2.92 | 0 |
| Grand Total | 21,863 | 1,468 | 6.71% | 3.50 | 411 |

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

The Office of Undergraduate Research coordinated several events and activities during academic year 2016. The self-disclosed undergraduate student participation counts are available in Table 2. The most activities any single student participated in were five and the combinations can be seen in the activity charts by college.

Table 2 Description and participation count of undergraduate research activities

| Report Abbreviations | Description | Participation |
|-----------------------------|---|----------------------|
| UGRHT16 | Completed Capstone or Thesis Course in department, UNHO497 or UNHO498 | 781 |
| UGREURCA16 | Spring 2016 poster and creative display of faculty-mentored research | 395 |
| UGRSS16 | Summer Scholar - Participation in research at UT during summer 2016 | 146 |
| UGRORNLSu16 | Participation in research at ORNL during summer 2016 | 133 |
| UGRArtComp16 | Students who have attended a competition or conference not funded by OUR AY16 | 86 |
| UGRSymp16 | Participation in the spring 2016 Undergraduate Research Symposium | 53 |
| UGRNCUR16 | Attendance at the National Conference on Undergraduate Research (NCUR) in AY16 | 48 |
| UGRDD15 | Presentation of research via poster at Discovery Day Event in Fall 2015 | 39 |
| UGRORNL16 | Participation in research at ORNL during fall or spring AY16 | 32 |
| UGRSURIP16 | Selected to receive funding for summer research at UT in summer 2016 | 30 |
| UGRRISER16 | Participation in research funded through RISER grant during AY16 | 28 |
| Ugrsemspr16 | Participated in a seminar session in spring 16 | 26 |
| UGRCMP16 | Participation in research at the Center for Materials Processing during AY16 | 23 |
| UGRMUSICCOMP16 | Participated in UT Music Competition in spring 2016 | 22 |
| UGRPursuit16 | Publication in volume VII for Pursuit, the campus journal of undergraduate research | 18 |
| UGRMSE16 | Material science and engineering research in AY16 | 15 |
| UGRTELS15 | Participation in Tennessee Experiential Learning Symposium in Fall 2015 | 15 |
| UGRCon16 | Presented undergraduate research at a professional conference during AY16 | 17 |
| UGRWorkStudy16 | UGR Work-Study Students for 2016 | 8 |
| UGRPAC16 | Participation in Posters at the Capitol during spring 2016 | 7 |
| UGREEBcon16 | Participation in EEB Research Conference in spring 2016 | 6 |
| Ugricur15 | Participation in International Conference for Undergraduate Research during Fall 2015 | 6 |

| | | |
|--|--|--------------|
| UgrabroadS16 | Participation in research abroad during spring 2016 | 4 |
| UGClassicsCon16 | Participation in Classics Conference in spring 2016 | 3 |
| UGRQuest16 | Students featured in Quest, the UT Research Journal | 3 |
| Ugrabroadsum16 | Participation in research abroad during summer 2016 | 2 |
| UGRPOH16 | Participation in Posters on the Hill during spring 2016 | 1 |
| Ugrpublish16 | Published undergraduate research in a journal or publication during AY16 | 1 |
| UGRCDCA15 | Charles D. Coryell award in nuclear chemistry 2016-16 | 1 |
| Grand Total of self-disclosed and faculty reported activity participation | | 1,949 |

Faculty Survey Participation

In spring 2016, a survey of faculty was conducted to gain insight into the undergraduate research and creativity culture at the University of Tennessee, Knoxville. Of the 2,554 individuals who received the emailed survey request, 654 surveys were started and 643 of those completed the multi-question instrument. Of the 643 respondents, 208 (32.3%) noted they did not mentor undergraduate students in research during Academic Year 2016.

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 (57.24%) engaged students in their own research project(s).

Table 3 Faculty engagement in undergraduate research activities

| Answer | Response | Response Percentage |
|--|----------|---------------------|
| Engaged undergraduates on YOUR research project | 249 | 57.24% |
| Worked with undergraduates on a research project (not your own research) | 194 | 44.60% |
| Mentored undergraduate research students in a way not previously listed | 162 | 37.24% |
| Supervised an undergraduate thesis (chair or committee) | 117 | 26.90% |
| Taught a research intensive course (not strictly a methodologies course) | 108 | 24.83% |
| Taught a research methodologies course | 73 | 16.78% |
| Taught a senior capstone design course | 43 | 9.89% |

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 2.27 was students' knowledge of basic research methodologies. Funding for student supplies and student stipends tied in third and fourth place.

Table 4 Factors related to the decision to mentor

| Question | Essential (1) | Very Important (2) | Somewhat Important (3) | Not Important (4) | Total Responses | Mean |
|---|--------------------------|-----------------------------------|---------------------------------------|----------------------------------|----------------------------|-------------|
| Students' knowledge of basic research methodologies | 97 | 131 | 150 | 28 | 406 | 2.27 |
| Students' knowledge of discipline-specific research methodologies | 73 | 131 | 156 | 46 | 406 | 2.43 |
| Funding available for student supplies | 81 | 105 | 119 | 101 | 406 | 2.59 |
| Funding available for student stipends | 80 | 112 | 109 | 105 | 406 | 2.59 |
| Research/office space and computer availability for the student | 49 | 104 | 139 | 114 | 406 | 2.78 |
| Funding available for travel grants for undergraduates | 44 | 93 | 156 | 112 | 405 | 2.83 |
| Students' knowledge of the IRB process (Institutional Review Board) | 32 | 37 | 122 | 215 | 406 | 3.28 |

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 from last year to this year (mean=2.10), followed by travel funds for the faculty member and student to present their results at a conference or event outside of the university (mean=2.57).

Table 5 Importance of Faculty benefits in undergraduate research mentoring

| Question | Essential (1) | Very Important (2) | Somewhat Important (3) | Not Important (4) | Total Responses | Mean |
|--|--------------------------|-----------------------------------|---------------------------------------|----------------------------------|----------------------------|-------------|
| Official recognition towards scholarly activity and/or service in the tenure/promotion process | 141 | 129 | 87 | 48 | 405 | 2.10 |
| Travel funds for faculty and students to present research results | 68 | 113 | 146 | 77 | 404 | 2.57 |
| Public recognition from my department head or dean | 56 | 104 | 156 | 89 | 405 | 2.69 |
| Public recognition from the university | 49 | 97 | 159 | 100 | 405 | 2.77 |
| Release time for mentoring undergraduate research | 44 | 106 | 120 | 134 | 404 | 2.85 |
| Travel funds to conduct research off site | 49 | 94 | 124 | 137 | 404 | 2.86 |
| Compensation for mentoring undergraduate research | 33 | 70 | 130 | 172 | 405 | 3.09 |

Two questions were asked of the 208 Faculty who did not mentor undergraduate students in Academic Year 2016 including their reason for not mentoring and the importance of benefits if they chose to mentor. Regarding their decision to not mentor, faculty were limited to their top reason. The top three factors were related to resource constraints (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).

Table 6 Faculty decision not to mentor undergraduate research in Academic Year 2016

| Answer | Count | % |
|--|--------------|----------|
| I do not have any time available in my schedule to mentor undergraduate research projects. | 58 | 35.80% |
| I just started my faculty career at UT. | 44 | 27.16% |
| 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. | 33 | 20.37% |
| My area of research is not suitable for undergraduate research. | 30 | 18.52% |
| I would rather invest my time working with graduate students. | 24 | 14.81% |
| I do not think there is adequate university recognition of faculty's efforts in mentoring undergraduate research projects. | 16 | 9.88% |
| I do not have the space to support undergraduate research. | 13 | 8.02% |
| I do not think undergraduates are adequately prepared to conduct faculty-mentored research projects. | 10 | 6.17% |
| I was on sabbatical or leave for all or a portion of AY16. | 9 | 5.56% |
| Students were not able to make the commitment that I was expecting. | 6 | 3.70% |

Table 7 Importance of benefits if non-mentoring Faculty choose to mentor undergraduate research

| Question | Essential (1) | Very Important (2) | Somewhat Important (3) | Not Important (4) | Total Responses | Mean |
|--|--------------------------|-----------------------------------|---------------------------------------|----------------------------------|----------------------------|-------------|
| Official recognition towards scholarly activity and/or service in the tenure/promotion process | 61 | 70 | 37 | 24 | 192 | 2.13 |
| Travel funds for faculty and students to present research results | 54 | 65 | 52 | 22 | 193 | 2.22 |
| Release time for mentoring undergraduate research | 43 | 57 | 56 | 37 | 193 | 2.45 |
| Travel funds for you | 41 | 47 | 56 | 48 | 192 | 2.58 |
| Compensation for mentoring undergraduate research | 42 | 38 | 66 | 47 | 193 | 2.61 |
| Public recognition from my department head or dean | 28 | 51 | 63 | 51 | 193 | 2.71 |
| Public recognition from the university | 23 | 39 | 69 | 61 | 192 | 2.88 |

Other Faculty Data Sources

For each event or activity registered for within the Office of Undergraduate Research (EURēCA, Summer Internships, and Summer Scholars), students were asked who was their UT faculty research mentor. From these results, 182 unique faculty mentors were identified (Table 8). Combining this data with the faculty survey and removing the duplicates produced 601 unique UT faculty undergraduate research mentors in academic year 2015-2016.

Table 8 Faculty Mentor Count

| Academic Years | Mentor Count - Access | Mentor Count - Survey | Total (no duplicates) |
|-----------------------|------------------------------|------------------------------|------------------------------|
| 2014-2015 | 276 | 81 | 321 |
| 2015-2016 | 182 | 433 | 601 |

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 2016

Out of 1,468 students who were flagged for participation in undergraduate research, 61 were from CASNR. Of the 1,472 College of Agricultural Sciences and Natural Resources students reported in the Fall 2015 Online Fact Book¹, only 4.14% participated in undergraduate research activities reported to the Office of Undergraduate Research. The breakdown among majors is included in Table 9.

Table 9 Undergraduate research within CASNR

| Majors | Department Enrollment Fall 15 | Count of UGR Participants | Average Overall GPA of UGR Participants | Count of UGR Participants in Honors |
|-------------------------------------|--------------------------------------|----------------------------------|--|--|
| Agr Sci Mat Res Explorat Track (U) | 13 | 1 | 2.10 | 0 |
| Agric Lead/Educ/Com (U/G) | 64 | 3 | 3.53 | 1 |
| Animal Science (U/G) | 574 | 9 | 3.49 | 3 |
| Biosystems Engineering (U/G) | 57 | 16 | 3.12 | 5 |
| Environmental & Soil Sciences (U/G) | 146 | 8 | 3.48 | 4 |
| Food Science And Technology (U/G) | 176 | 11 | 3.25 | 3 |
| Forestry (U/G) | 62 | 3 | 3.40 | 0 |
| Plant Sciences (U/G) | 140 | 4 | 3.20 | 0 |
| Wildlife & Fisheries Science (U/G) | 167 | 6 | 3.37 | 2 |
| Grand Total | | 61 | 3.22 | 18 |

**Departments not listed had zero reported UGR participants in AY16.*

The majority was seniors (48), with juniors having the next highest number (10), followed by freshmen (2), and sophomores (1). Eighteen (18) 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 AY16.

Table 10 Percentage participation in undergraduate research by major

| Majors | Department Enrollment Fall 15 | Count of UGR Participants | % UGR Participation |
|-------------------------------------|--------------------------------------|----------------------------------|----------------------------|
| Agr Sci Mat Res Explorat Track (U) | 13 | 1 | 7.69% |
| Agric Lead/Educ/Com (U/G) | 64 | 3 | 4.69% |
| Animal Science (U/G) | 574 | 9 | 1.57% |
| Biosystems Engineering (U/G) | 57 | 16 | 28.07% |
| Environmental & Soil Sciences (U/G) | 146 | 8 | 5.48% |
| Food Science And Technology (U/G) | 176 | 11 | 6.25% |
| Forestry (U/G) | 62 | 3 | 4.84% |
| Plant Sciences (U/G) | 140 | 4 | 2.86% |
| Wildlife & Fisheries Science (U/G) | 167 | 6 | 3.59% |
| Grand Total | | 61 | |

The majority of students participated in EURēCA 2016 (38). The next highest category was students who completed the Thesis or Capstone Course in academic year 2015-16 (17). Summer Research Scholar in 2016 had (16) students. The UGR Symposium in April 2016 saw participation from two (2) students. ORNL benefited from CASNR students with five (5) participating in research in summer 2016. One (1) student published in Pursuit. Two (2) students benefited from receiving funding for summer research at UT in summer 2016. One (1) student participated in the EEB Research Conference in spring 2016. One (1) student participated in NCUR 2016. One (1) student benefited from the UGR Work-Study program. CASNR had three (3) students present in the Fall 2015 poster event labeled Discovery Day (Table 11).

Table 11 CASNR student participation by activity combinations

| Row Labels | Count of UGR Tags |
|--|--------------------------|
| UGREURēCA16 | 21 |
| UGRSS16 | 12 |
| UGRHT16; UGREURēCA16 | 11 |
| UGRDD16 | 3 |
| UGRORNLsu16 | 3 |
| UGRHT16 | 1 |
| UGRHT16; UGRSS16 | 1 |
| UGRHT16; UGREURēCA16; UGRORNLsu16 | 1 |
| UGRHT16; UGREURēCA16; UGRPursuit16 | 1 |
| UGRHT16; UGREURēCA16; UGRSymp16 | 1 |
| UGRHT16; UGREURēCA16; UGRSS16; UGRSURIP16 | 1 |
| UGRSS16; UGRSURIP16 | 1 |
| UGRSS16; UGRNCUR16; UGREURēCA16 | 1 |
| UGREURēCA16; UGREEBConference16; UGRSymp16 | 1 |
| UGRORNL16; UGRORNLsu16 | 1 |
| UGRWorkStudy16 | 1 |
| Grand Total | 61 |

College of Architecture and Design AY 2016

Out of 1,468 students who were flagged for participation in undergraduate research, forty-two (42) were from the College of Architecture and Design. Of the 360 College of Architecture and Design students reported in the Fall 2015 Online Fact Book¹, 11.67% participated in undergraduate research activities reported to the Office of Undergraduate Research. The breakdown among majors is included in Table 12.

Table 12 Undergraduate Research within Architecture and Design

| Majors | Department Enrollment Fall 15 | Count of UGR Participants | Average Overall GPA of UGR Participants | Count of UGR Participants in Honors |
|---------------------|-------------------------------|---------------------------|---|-------------------------------------|
| Architecture (U/G) | 265 | 35 | 3.54 | 11 |
| Interior Design (U) | 95 | 7 | 3.45 | 0 |
| Grand Total | | 42 | 3.49 | 11 |

*Departments not listed had zero reported UGR participants in AY16.

The majority were seniors (40), with juniors having the next highest number (2), with no sophomores (0) and no freshmen (0). Eleven (11) students were denoted as honors students, with nine (9) participating in the Chancellor's Honors Program and two (2) participating in the Haslam Scholars Program.

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 AY16.

Table 13 Percentage participation in undergraduate research by Architecture and Design major

| Majors | Department Enrollment Fall 15 | Count of UGR Participants | % UGR Participation |
|---------------------|-------------------------------|---------------------------|---------------------|
| Architecture (U/G) | 265 | 35 | 13.21% |
| Interior Design (U) | 95 | 7 | 7.37% |
| Grand Total | | 42 | |

The majority of students completed the Thesis or Capstone Course in academic year 2015-16 (27). The second largest program students participated in was EURēCA in Spring 2016 with (17) students. Nine (9) students participated in the UGR Art Competition in Spring 2016. One student was a Summer Research Scholar in 2016 (1). Summer Research Scholars (SummerScholar15) are those students who participated on a research project during the summer, typically under the guidance of a UT faculty mentor or ORNL mentor. One (1) student received funds to conduct undergraduate research through the Office of Undergraduate Research (UGRSURIP16). ORNL benefited from a College of Architecture and Design student with three (3) participating in research in summer 2016 (Table 14).

Table 14 Architecture and Design student participation by activity combinations

| Student Participation Combinations | Count of Combined UGR |
|---|------------------------------|
| UGRHT16 | 14 |
| UGREURēCA16, UGRHT16 | 9 |
| UGREURēCA16 | 6 |
| UGRArtComp16 | 5 |
| UGRHT16, UGRArtComp16 | 3 |
| UGRORNLSu16 | 3 |
| UGREURēCA16, UGRSURIP16, UGRSS16 | 1 |
| UGREURēCA16, UGRHT16, UGRArtComp16 | 1 |
| Grand Total | 42 |

College of Arts & Sciences AY 2016

Out of 1,468 students who were flagged for participation in undergraduate research, 479 were from the College of Arts & Sciences. Of the 6,963 Arts & Sciences students reported in the Fall 2015 UT Online Fact Book¹, 6.88% participated in undergraduate research activities reported to the Office of Undergraduate Research. The breakdown among majors is included in Table 15.

Table 15 Undergraduate research participation within Arts & Sciences

| Majors | Department Enrollment Fall 15 | Count of UGR Participants | Average Overall GPA of UGR Participants | Count of UGR Participants in Honors |
|-------------------------------------|--------------------------------------|----------------------------------|--|--|
| Biological Sciences(U): Biology | 467 | 162 | 3.52 | 56 |
| Studio Art (U) | 122 | 41 | 3.37 | 1 |
| Graphic Design (U) | 113 | 31 | 3.37 | 2 |
| Interdisciplinary Programs (U) | 434 | 27 | 3.61 | 15 |
| Music (U/G) | 214 | 25 | 3.57 | 4 |
| Psychology (U/G) | 893 | 25 | 3.35 | 4 |
| College Scholars Program (U) | 31 | 24 | 3.72 | 20 |
| Geology and Environmental Study (U) | 134 | 16 | 3.34 | 2 |
| History (U/G) | 234 | 14 | 3.71 | 5 |
| Chemistry (U/G) | 219 | 13 | 3.51 | 6 |
| Physics (U/G) | 147 | 12 | 3.47 | 6 |
| English (U/G) | 380 | 11 | 3.78 | 7 |
| Political Science (U/G) | 465 | 11 | 3.49 | 2 |
| Anthropology (U/G) | 213 | 10 | 3.65 | 5 |
| Art (U/G) | 52 | 10 | 3.39 | 0 |
| Geography (U/G) | 66 | 9 | 3.45 | 1 |
| Classics (U) | 31 | 8 | 3.38 | 4 |
| Mathematics (U/G) | 189 | 6 | 3.95 | 4 |
| Sociology (U/G) | 288 | 5 | 3.76 | 1 |
| Arts & Sci Exploratory Track (U) | 304 | 3 | 3.19 | 0 |

| | | | | |
|--------------------------------|-----|------------|-------------|------------|
| Modern Foreign Lang/Liter (U) | 114 | 4 | 3.70 | 0 |
| Philosophy (U/G) | 41 | 2 | 3.51 | 1 |
| Pre-Professional Programs (U) | 688 | 2 | 3.76 | 2 |
| Religious Studies (U) | 17 | 2 | 3.53 | 1 |
| Art History (U/G) | 20 | 1 | 4.00 | 0 |
| Economics-Arts & Sciences (U) | 111 | 1 | 3.80 | 0 |
| Hispanic Studies (U) | 20 | 1 | 3.65 | 1 |
| Medical Laboratory Science (U) | 21 | 1 | 4.00 | 1 |
| Russian Studies (U) | 7 | 1 | 3.65 | 0 |
| Grand Total | | 478 | 3.59 | 151 |

**Departments not listed had zero reported UGR participants in AY16.*

The majority were seniors (392), with juniors having the next highest number (65), followed by sophomores (15), and six freshmen (6). One-hundred fifty-one (151) students were denoted as honors students. Therefore only 32% of the total College of Arts and Sciences participants in undergraduate research (478) were current 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 AY16.

Table 16 Percentage participation in undergraduate research by Arts & Sciences major

| Majors | Department Enrollment Fall 15 | Count of UGR Participants | % UGR Participation |
|------------------------------------|--------------------------------------|----------------------------------|----------------------------|
| Biological Sciences(U): Biology | 467 | 162 | 34.69 % |
| Studio Art (U) | 122 | 41 | 33.61 % |
| Graphic Design (U) | 113 | 31 | 27.43 % |
| Interdisciplinary Programs (U) | 434 | 27 | 6.22 % |
| Music (U/G) | 214 | 25 | 11.68% |
| Psychology (U/G) | 893 | 25 | 2.80% |
| College Scholars Program (U) | 31 | 24 | 77.42 % |
| Geology and Environmental Stdy (U) | 134 | 16 | 11.94% |
| History (U/G) | 234 | 14 | 5.98 % |

| | | | |
|----------------------------------|-----|------------|---------|
| Chemistry (U/G) | 219 | 13 | 5.94 % |
| Physics (U/G) | 147 | 12 | 8.16 % |
| English (U/G) | 380 | 11 | 2.89 % |
| Political Science (U/G) | 465 | 11 | 2.37 % |
| Anthropology (U/G) | 213 | 10 | 4.69 % |
| Art (U/G) | 52 | 10 | 19.23 % |
| Geography (U/G) | 66 | 9 | 13.64 % |
| Classics (U) | 31 | 8 | 25.81 % |
| Mathematics (U/G) | 189 | 6 | 3.17 % |
| Sociology (U/G) | 288 | 5 | 1.74 % |
| Arts & Sci Exploratory Track (U) | 304 | 4 | 1.32 % |
| Modern Foreign Lang/Liter (U) | 114 | 4 | 3.51 % |
| Philosophy (U/G) | 41 | 2 | 4.88 % |
| Pre-Professional Programs (U) | 688 | 2 | 0.29 % |
| Religious Studies (U) | 17 | 2 | 11.76 % |
| Art History (U/G) | 20 | 1 | 5.00% |
| Economics-Arts & Sciences (U) | 111 | 1 | 0.90% |
| Hispanic Studies (U) | 20 | 1 | 5.00 % |
| Medical Laboratory Science (U) | 21 | 1 | 4.76 % |
| Russian Studies (U) | 7 | 1 | 14.29 % |
| Grand Total | | 478 | |

**Departments not listed had zero reported UGR participants in AY16.*

The majority of students completed the Thesis or Capstone Course in academic year 2015-16 (187). The next highest category for self-designation was participation in EURēCA 2016 (105), with forty-four (44) of these students participating only in EURēCA 2016 and the remaining sixty-one (61) participating in EURēCA plus multiple other activities. The most any single student participated in was five unique activities. The UT art competition that was held in 2016 had seventy-five (75) participants. The Summer Research Scholars program had sixty-eight (68) participants in 2016. Summer Research Scholars (SS16) are those students who participated on a research project during the summer, typically under the guidance of a UT faculty mentor or ORNL mentor. Thirteen (13) students received funds to conduct undergraduate research through the Office of Undergraduate

Research (UGRSURIP16). While ORNL benefited from twenty-four (24) A&S students participating in research in summer 2016 and fifteen (15) students over the course of the school year. Twenty-four (24) students participated in Discovery Day 2016. The UGR Symposium in April 2016 saw participation from thirty (30) A&S students. The Tennessee Experiential Learning Symposium (TELS) saw participation from nine (9) UT students. The UT Music Competition saw participation from twenty students (20) in 2016. Thirteen (13) A&S students published in Pursuit, the campus journal of undergraduate research. The EEB conference and the Office of Undergraduate Research Work Study Research Program both had four (4) students. The UT Classics Conference saw participation from three (3) A&S students. Five (5) students participated in Posters at the Capitol (UGRPAC16), a display of research posters to state legislators. One (1) student worked as an undergraduate research assistant funded through the RISER grant in the College of Engineering. Two (2) students attended conferences and presented their research activity (UGRCon16) and five (5) students participated in a research semester abroad. Fifteen (15) students traveled to University of North Carolina at Asheville and presented their research at the National Conference of Undergraduate Research in April 2016. The magazine, Quest, benefitted from two (2) different A&S student profiles. CMP, MSE, and external journals saw participation from one (1) student each in A&S. No students participated in Posters on the Hill in 2016 (Table 17).

Table 17 Arts and Sciences student participation by activity combinations

| Student Participation Combinations | Count of Combined UGR |
|---|------------------------------|
| UGRHT16 | 141 |
| UGRArtComp16 | 62 |
| UGRSS16 | 46 |
| UGREUR̄CA16 | 44 |
| UGREUR̄CA16, UGRHT16 | 19 |
| UGRMusicComp16 | 19 |
| UGRORNLsu16 | 13 |
| UGRSymp16 | 11 |
| UGRArtComp16, UGREUR̄CA16 | 9 |
| UGRDD15 | 8 |
| UGRORNL16 | 6 |
| UGRPursuit16 | 7 |
| UGRSURIP16, UGRSS16 | 7 |
| UGRDD15, UGRArtComp16, UGREUR̄CA16 | 4 |
| UGRSS16, UGRHT16 | 4 |
| UGRWorkStudy16 | 4 |

| | |
|---|---|
| UGRSymp16, UGREURēCA16 | 4 |
| UGRDD15, UGREURēCA16 | 3 |
| UGRORNLsu16, UGRORNL16 | 3 |
| UGRSURIP16, UGRSS16, UGRHT16 | 3 |
| UGClassicsCon16 | 3 |
| UGREEBcon16, UGRHT16 | 2 |
| UGRORNL16 | 2 |
| ugrabroadsum16 | 2 |
| UGRSymp16, UGREURēCA16, UGRHT16 | 2 |
| UGRSymp16, UGRHT16 | 2 |
| UGRCMP16 | 1 |
| UGRDD15, UGRHT16 | 1 |
| UGRDD15, UGRNCUR16 | 1 |
| UGREEBcon16, UGRNCUR16 | 1 |
| UGREURēCA16, UGRSS16 | 1 |
| UGRMSE16, UGREURēCA16 | 1 |
| UGRMusicComp16, UGRSS16 | 1 |
| UGRNCUR16, UGREURēCA16 | 1 |
| UGRNCUR16, UGRHT16 | 1 |
| UGRNCUR16, UGRHT16, UGREURēCA16 | 1 |
| UGRORNL16, UGREURēCA16 | 1 |
| UGRORNLsu16, UGREURēCA16 | 1 |
| UGRORNLsu16, UGREURēCA16, UGRTELS15 | 1 |
| UGRORNLsu16, UGRHT16, UGREURēCA16, UGRSymp16 | 1 |
| UGRORNLsu16, UGRHT16, UGRNCUR16 | 1 |
| UGRORNLsu16, UGRORNL16, UGRHT16, UGREURēCA16 | 1 |
| UGRORNLsu16, UGRSS16 | 1 |

| | |
|---|---|
| UGRORNLSu16, UGRSymp16 | 1 |
| PAC16, UGRDD15, UGRNCUR16, UGREURēCA16, UGRSymp16 | 1 |
| PAC16, UGRDD15, UGRNCUR16, UGRPursuit16 | 1 |
| PAC16, UGRTELS15, UGRNCUR16, UGREURēCA16 | 1 |
| UGRPursuit16, UGREURēCA16 | 1 |
| UGRPursuit16, UGRHT16, UGRNCUR16, UGRSymp16 | 1 |
| UGRPursuit16, UGRHT16, UGRSymp16 | 1 |
| UGRPursuit16, UGRSymp16 | 1 |
| UGRQuest16 | 1 |
| UGRQuest16, UGRDD15, UGRHT16, UGRNCUR16, UGREURēCA16 | 1 |
| UGRRISER16 | 1 |
| UGRSURIP16, UGRSS16, UGRDD15, UGREURēCA16 | 1 |
| UGRSURIP16, UGRSS16, UGREURēCA16 | 1 |
| UGRSURIP16, UGRSS16, UGRTELS15, UGREURēCA16 | 1 |
| UGRabroadS16 | 1 |
| UGRabroadS16, UGRDD15, UGRPursuit16 | 1 |
| UGRabroadS16, UGRHT16 | 1 |
| UGRArtComp16, UGRHT16 | 1 |
| ugrcon16 | 1 |
| ugricurfa15 | 1 |
| ugricurfa15, UGREURēCA16, UGRSymp16 | 1 |
| ugricurfa15, UGRHT16 | 1 |
| ugricurfa15, UGRTELS15, UGRNCUR16, UGREURēCA16, PAC16 | 1 |
| ugricurfa15, UGRTELS15, UGRSS16 | 1 |
| ugrpublish16, UGRNCUR16, PAC16, UGREEBcon16 | 1 |
| UGRTELS15, UGRDD15, UGRNCUR16, UGREURēCA16 | 1 |

| | |
|--|------------|
| UGRTELS15, UGRHT16 | 1 |
| UGRSymp16, UGRDD15 | 1 |
| UGRSymp16, UGREURēCA16, UGRTELS15, UGRHT16 | 1 |
| UGRSymp16, UGRNCUR16 | 1 |
| UGRSymp16, UGRTELS15 | 1 |
| Grand Total | 478 |

Haslam College of Business AY 2016

Out of 1,468 students who were flagged for participation in undergraduate research, thirty-six (36) were from the Haslam College of Business. Of the 4,501 Haslam College of Business students reported in the Fall 2015 Online Fact Book¹, only 0.80% participated in undergraduate research activities reported to the Office of Undergraduate Research. The breakdown among majors is included in Table 18.

Table 18 Undergraduate research within Business

| Majors | Department Enrollment Fall 15 | Count of UGR Participants | Average Overall GPA of UGR Participants | Count of UGR Participants in Honors |
|---------------------------------|-------------------------------|---------------------------|---|-------------------------------------|
| Accounting (U/G) | 680 | 6 | 3.75 | 3 |
| Business Analytics (U/G) | 276 | 4 | 3.72 | 4 |
| Economics (U/G) | 134 | 2 | 3.79 | 1 |
| Finance (U) | 459 | 7 | 3.74 | 6 |
| Human Resource Management (U/G) | 94 | 1 | 3.56 | 1 |
| Management (U) | 467 | 1 | 3.55 | 1 |
| Marketing (U) | 571 | 6 | 3.43 | 3 |
| Supply Chain Management (U) | 839 | 9 | 3.56 | 5 |
| Grand Total | | 36 | 3.64 | 24 |

**Departments not listed had zero reported UGR participants in AY16.*

The majority was seniors (34), with juniors being the next largest group (2), sophomores and freshmen had none. Twenty-four (24) 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 AY16.

Table 19 Percentage participation in undergraduate research by Business major

| Majors | Department Enrollment Fall 15 | Count of UGR Participants | % UGR Participation |
|---------------------------------|-------------------------------|---------------------------|---------------------|
| Accounting (U/G) | 680 | 6 | 0.88% |
| Business Analytics (U/G) | 276 | 4 | 1.45% |
| Economics (U/G) | 134 | 2 | 1.49% |
| Finance (U) | 459 | 7 | 1.53% |
| Human Resource Management (U/G) | 94 | 1 | 1.06% |
| Management (U) | 467 | 1 | 0.21% |
| Marketing (U) | 571 | 6 | 1.05% |
| Supply Chain Management (U) | 839 | 9 | 1.07% |
| Grand Total | | 36 | |

The majority of students participated in EURēCA 2016 and completed the Thesis or Capstone Course in academic year 2015-16 (26). One (1) student was a Summer Research Scholars in 2016. Summer Research

Scholars (UGRSS16) are those students who participated on a research project during the summer, typically under the guidance of a UT faculty mentor or ORNL mentor. ORNL benefited Haslam College of Business students with six (6) participating in summer 2016. The UGR Symposium in April 2016 saw participation from one (1) student. One (1) student published in Pursuit, the campus journal of undergraduate research. One (1) student participated in the UGR Art Competition in 2016. One (1) student presented at NCUR 2016 in April. (Table 20).

Table 20 Business student participation by activity combinations

| Student Participation Combinations | Count of Combined UGR |
|---|------------------------------|
| UGREUR̄CA16; UGRHT16 | 25 |
| UGRORNLsu16 | 6 |
| UGRSS16 | 1 |
| UGRHT16; UGRNCUR16 | 1 |
| UGRArtComp16 | 1 |
| UGRPursuit16 | 1 |
| UGREUR̄CA16; UGRSymp16 | 1 |
| Grand Total | 36 |

College of Communication and Information AY 2016

Out of 1,468 students who were flagged for participation in undergraduate research, four (4) were from the College of Communication and Information. Of the 1,217 College of Communication and Information students reported in the Fall 2015 Online Fact Book¹, only 0.33% participated in undergraduate research activities reported to the Office of Undergraduate Research. The breakdown among majors is included in Table 21.

Table 21 Communication and Information student participation by activity combinations

| Majors | Department Enrollment Fall 15 | Count of UGR Participants | Average Overall GPA of UGR Participants | Count of UGR Participants in Honors |
|---------------------------|-------------------------------|---------------------------|---|-------------------------------------|
| Advertising (U) | 139 | 2 | 3.82 | 2 |
| Communication Studies (U) | 388 | 1 | 3.64 | 1 |
| Public Relations (U) | 247 | 1 | 3.73 | 0 |
| Grand Total | | 4 | 3.73 | 3 |

**Departments not listed had zero reported UGR participants in AY16.*

All participating students were seniors (4), with no juniors (0), sophomores (0), and no freshmen (0). Two (3) 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 AY16.

Table 22 Percentage participation in undergraduate research by Communication and Information major

| Majors | Department Enrollment Fall 15 | Count of UGR Participants | % UGR Participation |
|---------------------------|-------------------------------|---------------------------|---------------------|
| Advertising (U) | 139 | 2 | 1.44% |
| Communication Studies (U) | 388 | 1 | 0.26% |
| Public Relations (U) | 247 | 1 | 0.40% |
| Grand Total | | 4 | |

**Departments not listed had zero reported UGR participants in AY16.*

The majority of students participated in EURēCA 2016 and the UGR Symposium in April 2016 saw participation from two (2) students. One (1) student completed the Thesis or Capstone Course in academic year 2015-16. Summer Research Scholars (SummerScholar15) are those students who participated on a research project during the summer, typically under the guidance of a UT faculty mentor or ORNL mentor. ORNL benefited from one (1) College of Communication and Information student participating in research in summer 2016. (Table 23).

Table 23 Communication and Information student participation by activity combinations

| Student Participation Combinations | Count of Combined UGR |
|---|------------------------------|
| UGREURēCA16; UGRSymp16 | 2 |
| UGRORNLsu16 | 1 |
| UGRHT16 | 1 |
| Grand Total | 4 |

College of Education, Health, and Human Science AY 2016

Out of 1,468 students who were flagged for participation in undergraduate research, thirty-five (35) were from CEHHS. Of the 2,606 College of Education, Health, and Human Sciences students reported in the Fall 2015 Online Fact Book¹, only 1.34% participated in undergraduate research activities reported to the Office of Undergraduate Research. The breakdown among majors is included in Table 24.

Table 24 Undergraduate research within CEHHS

| Majors | Department Enrollment Fall 15 | Count of UGR Participants | Average Overall GPA of UGR Participants | Count of UGR Participants in Honors |
|------------------------------------|-------------------------------|---------------------------|---|-------------------------------------|
| Audiology/Speech Pathology (U) | 175 | 3 | 3.64 | 1 |
| Child and Family Studies (U/G) | 253 | 2 | 3.675 | 0 |
| Kinesiology (U/G) | 925 | 14 | 3.62 | 5 |
| Nutrition (U/G) | 229 | 9 | 3.80 | 1 |
| Recreation /Sport Management (U/G) | 482 | 2 | 3.37 | 0 |
| Retail And Consumer Sciences (U) | 81 | 3 | 3.13 | 0 |
| Special Education (U) | 190 | 2 | 2.79 | 1 |
| Grand Total | | 35 | 3.43 | 8 |

*Departments not listed had zero reported UGR participants in AY16.

The majority were seniors (29), with juniors and sophomores having the next highest number (3), followed by and freshmen (0). Eight (8) 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 AY16.

Table 25 Percentage participation in undergraduate research by CEHHS major

| Majors | Department Enrollment Fall 15 | Count of UGR Participants | % UGR Participation |
|------------------------------------|-------------------------------|---------------------------|---------------------|
| Audiology/Speech Pathology (U) | 175 | 3 | 1.71% |
| Child and Family Studies (U/G) | 253 | 2 | 0.79% |
| Kinesiology (U/G) | 925 | 14 | 1.51% |
| Nutrition (U/G) | 229 | 9 | 3.93% |
| Recreation /Sport Management (U/G) | 482 | 2 | 0.41% |
| Retail And Consumer Sciences (U) | 81 | 3 | 3.70% |
| Special Education (U) | 190 | 2 | 1.05% |
| Grand Total | | 35 | |

The majority of students participated Summer Research Scholars (10) in 2016. Summer Research Scholars (UGRSS16) are those students who participated on a research project during the summer, typically under the Office of Undergraduate Research

guidance of a UT faculty mentor or ORNL mentor. The next largest participation of students was in EURēCA 2016 (9), with seven (7) of these students only participated in EURēCA 2016, one (1) participated in EURēCA 2016 and completed the Thesis or Capstone Course in academic year 2015-16, and one (1) participated in EURēCA 16, TELS, Discovery Day 2016, NCUR 2016, and Posters at the Capitol 2016. Four (4) students received funds to conduct undergraduate research through the Office of Undergraduate Research (UGRSURIP16). The UGR Symposium in April 2016 saw participation from one (1) student. ORNL benefited from CEHHS students with one (1) participating in research in summer 2016. The Tennessee Experiential Learning Symposium saw participation from five (5) students in fall of 2016. Three (3) students benefited from the undergraduate research Work Study program in 2016. Two (2) students participated in Discovery Day 2016, two (2) students presented at NCUR 2016, and two (2) students saw their work published in the UTK undergraduate academic journal PURSUIT in 2016. One (1) student was accepted to present at the prestigious Posters at the Capitol poster session, and one (1) student participated in the undergraduate research art competition in 2016. (Table 26).

Table 26 CEHHS student participation by activity combinations

| Student Participation Combinations | Count of UG Combined |
|--|-----------------------------|
| UGREURēCA16 | 7 |
| UGREURēCA16, UGRHT16 | 1 |
| UGRORNLsu16 | 1 |
| UGRSS16 | 5 |
| UGRSS16, UGRSURIP16 | 4 |
| UGTels15 | 4 |
| UgTels15, UGRDD16, UGRNCUR16, UGREURēCA16, PAC16 | 1 |
| UGRDD16, UGRSS16, UGRSURIP16 | 1 |
| UGRArtComp16 | 1 |
| UGRHT16 | 4 |
| UGRNCUR16, UGRWorkStudy16 | 1 |
| UGRPursuit16 | 2 |
| UGRWorkStudy16 | 2 |
| UGRSymp16 | 1 |
| Grand Total | 35 |

College of Engineering AY 2016

Out of 1,468 students who were flagged for participation in undergraduate research, 696 were from the College of Engineering. Of the 2,965 College of Engineering students reported in the Fall 2015 Online Fact Book¹, 23.47% participated in undergraduate research activities reported to the Office of Undergraduate Research. The breakdown among majors is included in Table 27.

Table 27 Undergraduate research within Engineering

| Majors | Department Enrollment Fall 15 | Count of UGR Participants | Average Overall GPA of UGR Participants | Count of UGR in Honors |
|------------------------------------|--------------------------------------|----------------------------------|--|-------------------------------|
| Aerospace Engineering (U/G) | 184 | 8 | 3.31 | 3 |
| Biomedical Engineering (U/G) | 238 | 34 | 3.34 | 11 |
| Chemical Engineering (U/G) | 399 | 74 | 3.61 | 36 |
| Civil Engineering (U/G) | 305 | 71 | 3.26 | 10 |
| Computer Engineering (U/G) | 153 | 29 | 3.44 | 9 |
| Computer Science (U/G) | 337 | 90 | 3.44 | 23 |
| Electrical Engineering (U/G) | 241 | 69 | 3.32 | 14 |
| Industrial Engineering (U/G) | 139 | 43 | 3.25 | 9 |
| Materials Science & Engineer (U/G) | 83 | 52 | 3.36 | 17 |
| Mechanical Engineering (U/G) | 686 | 166 | 3.36 | 25 |
| Nuclear Engineering (U/G) | 200 | 60 | 3.50 | 24 |
| Grand Total | | 696 | 3.38 | 181 |

**Departments not listed had zero reported UGR participants in AY16.*

The majority were seniors (599), with juniors having the next highest number (50), followed by sophomores (37) and one freshman (8). One hundred seventy-nine (179) 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 AY16.

Table 28 Percentage participation in undergraduate research by Engineering major

| Majors | Department Enrollment Fall 15 | Count of UGR Participants | % UGR Participation |
|------------------------------------|--------------------------------------|----------------------------------|----------------------------|
| Materials Science & Engineer (U/G) | 83 | 52 | 62.65% |
| Industrial Engineering (U/G) | 139 | 43 | 30.94% |
| Nuclear Engineering (U/G) | 200 | 60 | 30.00% |
| Electrical Engineering (U/G) | 241 | 69 | 28.63% |
| Computer Science (U/G) | 337 | 90 | 26.71% |
| Mechanical Engineering (U/G) | 686 | 166 | 24.20% |
| Civil Engineering (U/G) | 305 | 71 | 23.28% |
| Computer Engineering (U/G) | 153 | 29 | 18.95% |
| Chemical Engineering (U/G) | 399 | 74 | 18.55% |
| Biomedical Engineering (U/G) | 238 | 34 | 14.29% |
| Aerospace Engineering (U/G) | 184 | 8 | 4.35% |
| Grand Total | | 696 | |

As shown in Table 29, the majority of students completed the Thesis or Capstone Course in academic year 2015-16 (501). The amount of engineering students participating in EUR̄CA 2016 doubled in regards to last year with eighty-nine (89) participants in AY16 with thirteen (13) of these students participating in only EUR̄CA 2016 and the rest participating in multiple events and activities (Table 30). The next highest category was student participation (93) at ORNL over summer 2016. There were a large number of students participating as Summer Research Scholars in 2016 (46). Summer Research Scholars (UGRSS16) are those students who participated on a research project during the summer, typically under the guidance of a UT faculty mentor or ORNL mentor. Five (5) students received funds to conduct undergraduate research through the Office of Undergraduate Research (UGRSURIP16). Conferences outside of UT saw participation from twelve (12) students (UGRCON16). One (1) student published in Pursuit – the campus journal of undergraduate research. Twenty-four (24) students participated in the National Conference of Undergraduate Research (UGRNCUR16). One (1) student travelled to Washington, DC to represent UT at Posters on the Hill (UGRPOH16). One (1) student also participated in Posters at the Capitol (PAC16) and presented their research to state legislators. Two (2) students participated in the first Tennessee Experiential Learning Symposium (UGRTELS15) and one (1) student participated in the International Conference for Undergraduate Research (UGRICURFA15). One (1) student participated in research during their time abroad during spring semester 2016 (ugrabroadspring16), and two (2) students participated in UT’s Music Competition in AY16 (UGRMUSICCOMP16). Fourteen (14) students participated in material science and engineering research in AY16 (UGRMSE16). Twenty-two (22) students participated in research in the Center for Materials Processing (CMP2016) and twenty-seven (27) conducted research funded through the RISER grant (UGRRISER16).

Table 29 Engineering student participation by activity combinations

| Student Participation Combinations | Count of Combined UGR |
|---|------------------------------|
| UGRHT16 | 406 |
| UGRORNLsu16 | 57 |
| UGREURēCA16, UGRHT16 | 54 |
| UGRSS16 | 22 |
| UGRORNLsu16, UGRHT16 | 18 |
| UGRRISER16 | 18 |
| UGRCMP16 | 15 |
| UGREURēCA16 | 13 |
| UGRORNL16 | 9 |
| UGRMSE16 | 6 |
| UGRRISER16, UGRSS16 | 6 |
| UGRCMP16, UGRSS16 | 4 |
| UGRMSE16, UGRHT16 | 4 |
| UGRNCUR16 | 4 |
| UGRcon16 | 4 |
| UGRNCUR16, UGRHT16 | 3 |
| UGRORNLsu16, UGREURēCA16 | 3 |
| UGRcon16, UGRHT16 | 3 |
| UGRDD2015, UGRHT16 | 2 |
| UGREURēCA16, UGRNCUR16 | 2 |
| UGRMSE16, UGRSS16 | 2 |
| UGRORNL16 | 2 |
| UGRORNLsu16, UGRORNL16 | 2 |
| UGRRISER16, UGREURēCA16 | 2 |
| UGRcon16, UGRNCUR16 | 2 |
| UGRCMP16, UGRSS16, UGRNCUR16, UGREURēCA16 | 1 |
| UGRCMP16, UGRSS16, UGRNCUR16 | 1 |
| UGRCMP16, UGRHT16, UGRNCUR16 | 1 |
| UGRDD2015, UGRMSE16, UGRNCUR16, UGREURēCA16, UGRORNLsu16 | 1 |
| UGRDD2015, UGRHT16, UGREURēCA16 | 1 |
| UGRDD2015, UGRHT16, UGRNCUR16, UGREURēCA16 | 1 |
| UGREURēCA16, UGRSS16, UGRNCUR16 | 1 |
| UGRMSE16, UGREURēCA16, URSASymp16 | 1 |
| UGRMusicComp16, UGRNCUR16, UGRORNLsu16 | 1 |
| UGRMusicComp16 | 1 |
| UGRORNL16, UGREURēCA16 | 1 |
| UGRORNLsu16, UGRHT16, UGREURēCA16 | 1 |
| UGRORNLsu16, UGRSS16 | 1 |
| UGRORNLsu16, UGRHT16, UGRNCUR16 | 1 |
| UGRORNLsu16, UGRNCUR16, UGREURēCA16 | 1 |
| UGRORNLsu16, UGRNCUR16 | 1 |
| UGRORNLsu16, UGRHT16, UGRORNL16, UGRNCUR16 | 1 |
| UGRORNLsu16, UGRHT16, UGRSS16, | 1 |

| | |
|---|------------|
| UGRSURIP16 | |
| UGRORNLSu16, UGRORNL16 | 1 |
| UGRRISER16, UGRSS16, UGRSURIP16 | 1 |
| UGRSS16, UGRHT16 | 1 |
| UGRSURIP16, UGRSS16 | 1 |
| UGRSURIP16, UGRSS16, UGREURēCA16 | 1 |
| UGRabroadspring16 | 1 |
| UGRcon16, UGRHT16, UGREURēCA16, UGRORNLSu16 | 1 |
| UGRcon16, UGREURēCA16, UGRORNLSu16 | 1 |
| UGRcon16, UGRHT16, UGREURēCA16 | 1 |
| UGRicurfa15, UGRHT16, UGRSS16, UGRNCUR16, UGRQuest16, UGRSURIP16, UGRpoh16 | 1 |
| UGRtels15, UGRDD2015, PAC16, UGRORNLSu16 | 1 |
| UGRtels15, UGRSS16, UGRpursuit16 | 1 |
| URSASymp16, UGREURēCA16 | 1 |
| URSASymp16, UGRSS16, , UGREURēCA16 | 1 |
| URSASymp16, UGRNCUR16 | 1 |
| Grand Total | 696 |

College of Nursing AY 2016

Out of 1,468 students who were flagged for participation in undergraduate research, 100 were from the College of Nursing. Of the 576 College of Nursing students reported in the Fall 2015 Online Fact Book¹, 17.36% participated in undergraduate research activities reported to the Office of Undergraduate Research (Table 30).

Table 30 Undergraduate research within Nursing

| Majors | Department Enrollment Fall 15 | Count of UGR Participants | Average Overall GPA of UGR Participants | Count of UGR Participants in Honors |
|--------------------|-------------------------------|---------------------------|---|-------------------------------------|
| Nursing (U) | 576 | 100 | 3.56 | 14 |
| Grand Total | | 100 | 3.56 | 14 |

*Departments not listed had zero reported UGR participants in AY16.

All participating students were seniors (97), with (3) juniors, and no sophomores (0), or freshmen (0). Only thirteen (14) students were denoted as honors students, participating in the Chancellor's Honors Program.

The majority of students participated in EURēCA 2016 (97). The UGR Symposium in April 2016 saw participation from twelve (12) students. Nine (9) students completed the Thesis or Capstone Course in academic year 2016. Four (4) students self-designated as a Summer Research Scholar in 2016. Summer Research Scholars (UGRSS16) are those students who participated on a research project during the summer, typically under the guidance of a UT faculty mentor or ORNL mentor. Four (4) students received funds to conduct undergraduate research through the Office of Undergraduate Research in summer 2016 (UGRSURIP16). Four (4) students participated at NCUR 2016. Three (3) students presented a poster at Discovery Day in Fall 2015. (Table 31).

Table 31 Nursing student participation by activity combinations

| Student Participation Combinations | Count of UG Combined |
|---|----------------------|
| UGREURēCA16 | 85 |
| UGREURēCA16, UGRHT16, UGRSymp16 | 3 |
| UGREURēCA16, UGRDD16, UGRHT16, UGRNCUR16, UGRSymp16 | 2 |
| UGRHT16 | 2 |
| UGREURēCA16, UGRSS16, UGRSymp16, UGRSURIP16 | 2 |
| UGRSS16 | 1 |
| UGREURēCA16, UGRDD16, UGRSymp16 | 1 |
| UGREURēCA16, UGRSS16, UGRNCUR16, UGRHT16, UGRSymp16, UGRSURIP16 | 1 |
| UGREURēCA16, UGRHT16, UGRSymp16, UGRNCUR16 | 1 |
| UGREURēCA16, UGRSymp16, UGRSURIP16 | 1 |
| UGREURēCA16, UGRSymp16 | 1 |
| Grand Total | 100 |

College of Social Work AY 2016

Out of 1,468 students who were flagged for participation in undergraduate research, 7 were from the College of Social Work. Of the 194 College of Social Work students reported in the Fall 2015 Online Fact Book¹, only 3.61% participated in undergraduate research activities reported to the Office of Undergraduate Research (Table 32).

Table 32 Undergraduate research within Social Work

| Majors | Department Enrollment Fall 15 | Count of UGR Participants | Average Overall GPA of UGR Participants | Count of UGR Participants in Honors |
|--------------------|--------------------------------------|----------------------------------|--|--|
| Social Work (U) | 194 | 7 | 3.76 | 1 |
| Grand Total | | 7 | 3.76 | 1 |

**Departments not listed had zero reported UGR participants in AY16.*

One (1) student was denoted as an honors student. All students were seniors (7).

The majority of students participated in EURēCA 2016 and completed the Thesis or Capstone Course in academic year 2015-16 (6). The UGR Symposium in April 2016 saw participation from one (1) student (Table 33).

Table 33 Social Work student participation by activity combinations

| Student Participation Combinations | Count of Combined |
|---|--------------------------|
| UGREURēCA16, UGRHT16 | 6 |
| UGRSymp16 | 1 |
| Grand Total | 7 |

University Undecided AY 2016

Out of 1,468 students who were flagged for participation in undergraduate research, 8 were labeled University Undecided. Of the 1,009 University Undecided students reported in the Fall 2015 Online Fact Book¹, only 0.79% participated in undergraduate research activities reported to the Office of Undergraduate Research (Table 34).

Table 34 Undergraduate research within University Undecided

| Majors | Department Enrollment Fall 15 | Count of UGR Participants | Average Overall GPA of UGR Participants | Count of UGR Participants in Honors |
|----------------------------------|-------------------------------|---------------------------|---|-------------------------------------|
| University Exploratory Track (U) | 792 | 2 | 2.64 | 0 |
| University Undecided (U) | 202 | 6 | 3.19 | 0 |
| Grand Total | | 8 | 2.92 | 0 |

**Departments not listed had zero reported UGR participants in AY16.*

The majority were other students (6), and two seniors (2). No students were denoted as honors students.

The majority of students, three (3), participated in EURēCA 2016. Two (2) students had completed the Thesis or Capstone Course in academic year 2015-16. One (1) student participated as a Summer Research Scholar in 2016. Summer Research Scholars (UGRSS16) are those students who participated on a research project during the summer, typically under the guidance of a UT faculty mentor or ORNL mentor. ORNL benefited from one (1) student from the Undecided students at UT. One (1) student participated in the EEB conference in 2016. (Table 35).

Table 35 Undecided student participation by activity combinations

| Student Participation Combinations | Count of Combined UGR |
|------------------------------------|-----------------------|
| UGRORNL16; UGRORNLsu16 | 1 |
| UGREURēCA16 | 3 |
| UGRHT16 | 2 |
| UGRSS16 | 1 |
| UGREEBConference16 | 1 |
| Grand Total | 8 |

National Survey of Student Engagement Data

At this time, the university does not track enrollment in undergraduate research related courses through any course designations. However, data is available from the National Survey of Student Engagement (NSSE). 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 2015 UT Online Fact Book¹ 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.

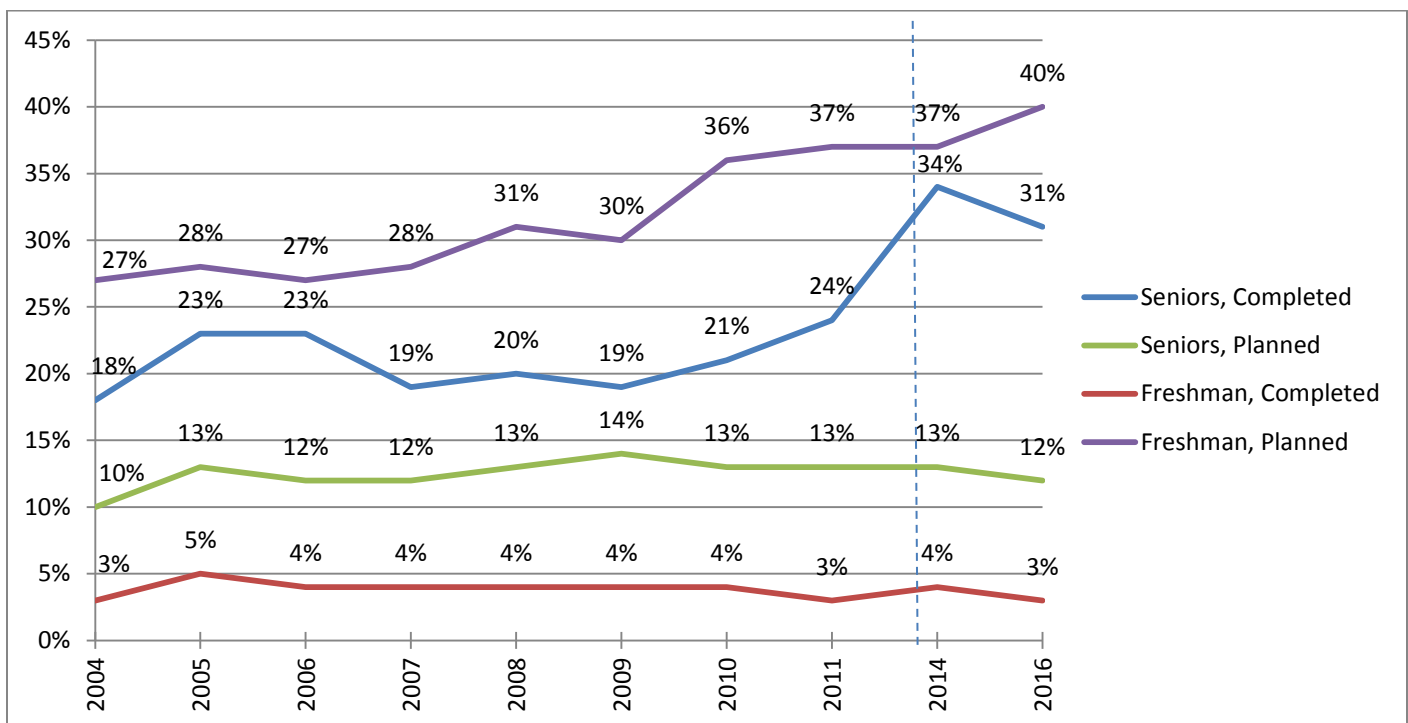


Figure 1 Responses to NSSE question on undergraduate research participation

NSSE provides a comprehensive report² of *Participation in High-Impact Practices by Student Characteristics* among Carnegie Classified Research Universities with very high research activity. For 2016, 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 36 NSSE 2016 High-Impact Practices, U.S. Summary Percentages by Institutional Characteristics

| | <u>First-Year Students (%)</u> | <u>Seniors (%)</u> |
|--|------------------------------------|----------------------------------|
| | Research with Faculty | Research with Faculty |
| Carnegie Classification | | |
| 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% |
| Control | | |
| Public | 5% | 23% |
| Private | 5% | 25% |
| Undergraduate enrollment | | |
| 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> | | |

Recommendations

In our attempt to provide a comprehensive data report regarding student participation in undergraduate research, we found the reliance on self-reported data and outcome specific data to cause many areas to be underreported. Relying on participation counts in on-campus presentation opportunities self-limited those students who were not ready to present their research projects. For example, we know that 100% of College Scholars, Chancellor's Honors Program, and Haslam Scholars Students are required to complete a thesis project. These projects meet our definition of undergraduate research. While not all students in these programs will be conducting research during the same time period, we can assume approximately 60% would be involved in some type of research activity. Of the over 1,700 Chancellor's Honors Program and Haslam Scholars students, only 192 (11%) reported research participation during Academic Year 2016.

We can expect that self-reporting has caused an underestimation of at least 1,000 additional students participating in undergraduate research. **If we use the NSSE data, which estimates approximately 43% of each class is interested in conducting or is conducting research, then that number balloons to over 9,000 students involved in the undergraduate research enterprise each year.**

One of the goals of the Office of Undergraduate Research, as well as the Quality Enhancement Plan, is to increase the number of students conducting undergraduate research. A corollary goal then would also be to improve our data collection methods. Improvement could be gained through partnership with other campus units and the systems in place for data gathering. The following are recommendations for data collection improvement:

1. Identification and growth of undergraduate research assistants through incentivization in the workload, tenure, and promotion guidelines. The faculty reporting system, Elements, has been modified to allow for data collection.
2. Creation of a data management tool for student participation in undergraduate research and other high impact practices which would in turn feed the proposed co-curricular transcript initiative in Student Life.
3. Increased partnership with the College Scholars Program, Chancellors Honors Program, and the Haslam Scholars Program, to ensure all students are reporting their undergraduate research involvement.
4. Promotion of the 'R' designation option for research intensive courses in order to capture students who have completed course-based research projects.
5. Adoption of the co-curricular transcript as proposed by the Office of Student Life.
6. Development of an undergraduate innovation center to support increased involvement in the discovery and entrepreneurship enterprise.

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

² National Survey of Student Engagement. (n.d.). HIPs by Student and Institutional Characteristics. Retrieved December 29, 2016, from National Survey of Student Engagement: http://nsse.iub.edu/2016_institutional_report/pdf/HIPTables/HIP.pdf