Cover photos (left-to-right)
Row 1–2014 Fall Undergraduate Research Student Poster Forum, Kelly Ward.
   Row 2–Tyisha Nedd, Basem Rashwan, Anna Dorfi.
   Row 3–Robert Warburton, 2014 URO Summer Fellows
Ohio State’s collective knowledge, talents and resources make it one of the most comprehensive universities in the world. The transformative research performed by undergraduate students and guided by leading experts in their fields is vital to the university’s commitment to helping the global community meet present and future challenges.

Michael V. Drake, President

The Undergraduate Research Office connects students and faculty to a range of opportunities that spans our academic landscape—from studios to laboratories and from theatre to neuroscience. Recognized for excellence in undergraduate research programs by US News & World Report in September 2014, our real-time, mentored and collaborative research projects also help develop students’ critical, analytical and independent thinking skills. Thus, in addition to expanding students’ intellectual horizons and knowledge base, they also gain skills for every college course, skills for careers, and skills for life.

Joseph E. Steinmetz, Executive Vice President and Provost

Engaging in research at the undergraduate level has proven to provide significant positive benefits to the overall quality of education, within the specific subject area in which the research is grounded, as well as in all other subjects that the student is engaged in. It also has a similar positive impact on the student’s faculty mentor, and in fact the university at large sees the value of the experience.

Wayne E. Carlson, Vice Provost and Dean of Undergraduate Education

The Ohio State University is one of the world’s most outstanding and comprehensive research universities. The range of opportunities provided for our students in the research arena is unparalleled. By working with world-class faculty, our students truly do make a difference. We are proud of their contributions and impressed by the exciting careers they pursue after getting involved in research.

Caroline C. Whitacre, Vice President for Research
Table of Contents

Highlights.............................................................................................................................................. vi
The Undergraduate Research Office (URO)........................................................................................ 1
Metrics of Participation in Undergraduate Research at Ohio State.................................................... 4
  Portfolio of Undergraduate Research Experiences (PURE)............................................................ 6
Year-Long Programming for Ohio State Undergraduates................................................................. 13
Funding Awards from URO.................................................................................................................. 20
Publicity and Marketing........................................................................................................................ 25
National Conferences and Publications............................................................................................. 29
Journal of Undergraduate Research at The Ohio State University (JUROS)..................................... 30

APPENDICES
Appx. A: Strategic Plan for the Undergraduate Research Office...................................................... 31
Appx. B: Undergraduate Research Offices at CIC and Benchmark Universities............................ 35
Appx. C: Recipients of Funding Awards from URO......................................................................... 40
Appx. D: Undergraduate Research Mentor Awards......................................................................... 47
Appx. E: Priorities for Donors to Undergraduate Research............................................................... 50

TABLES
Table 1. Overall student participation in undergraduate research, 2004–14........................................ 7
Table 2. Numbers of students graduating with Distinction (thesis), 2013–14........................................ 8
Table 3. Percent of theses and Denman Forum poster presenters by discipline, 2011–14.................... 9
Table 4. Numbers of research and creative activity presentations at Ohio State, 2012–14............... 10
Table 5. Number of summer undergraduate research fellowships at Ohio State, 2011–14.............. 11
Table 6. URO Programs in Spring and Autumn Semesters 2014...................................................... 13
Table 7. Participation in Summer Undergraduate Research Institute, 2010–14............................... 16
Table 8. Number of funding awards from URO, 2008–2014............................................................ 20
Table 9. Attendees’ sources for event information............................................................................. 26
Table B1. Comparison of undergraduate research offices at benchmark and CIC universities........ 39

Quote from an undergraduate researcher in 2014:

Because of my research, I’ve become a better writer, a better programmer, and a better economic thinker. I’ve been able to build relationships with my advisor and other faculty members. I’ve discovered my interest in attending graduate school and pursuing a research career. Finally, and most importantly, it’s been a lot of fun. It’s a cool experience to bounce ideas off a fellow researcher, to think through and help solve real world problems, and to contribute to your chosen field.

John Conlon (Economics)
Highlights

Since 2006, the Undergraduate Research Office (URO) has provided a central clearinghouse for information and a voice for undergraduate research at The Ohio State University. We strive to open new horizons for interested students from all academic disciplines. The URO has contributed to a surge of interest in research collaborations between students and faculty, and we are pleased to summarize our efforts in this report.

2014 marks the first year in which the URO received substantial funding from the OSU parking lease endowment for research scholarships, along with an additional staff position from the Office of Undergraduate Education. These resources have greatly increased our engagement with students and their research mentors, as well as student participation in URO-sponsored forums and other events.

A few highlights from 2014:

- Once again, The Ohio State University was recognized for excellence in undergraduate research programs by US News & World Report in September.

- The campus-wide Denman Undergraduate Research Forum continues to be the most significant undergraduate research event of the year, with 629 participants and more than 500 faculty judges in 2014.

- With funding from the OSU parking lease endowment, the URO offered two new scholarships: Undergraduate Research Scholar Awards (98 awards at $1,000 per student) and Undergraduate Education Summer Research Fellowships (89 awards at $3,500 per student).

- Enrollment for research credits increased by 20% compared to the 2013 academic year.

- 328 students were funded by summer research programs and 511 students took part in the Summer Undergraduate Research Institute, representing increases of 79% and 29%, respectively, compared to 2013.

- 228 students gave presentations at the Fall Undergraduate Research Forum, which we co-sponsored with University Libraries, up 46% compared to 2013.

- 350 students completed a thesis and graduated with Research Distinction, Honors Research Distinction, or Distinction, compared to 364 in 2013.

- More than 9,600 OSU students, faculty, and staff registered to receive our email newsletters and announcements, and the URO website had a record number of over 56,000 unique visits. Our workshops, events, and short presentations in OSU classes reached more than 6,000 students.

- The URO launched a new database for monitoring participation in undergraduate research – the Portfolio for Undergraduate Research Experiences (PURE).
Helene Cweren led a workshop at the 2014 annual Council on Undergraduate Research Conference in Washington, DC, titled “Developing Undergraduate Researchers as Leaders.”

44 undergraduate researchers presented at the 2014 National Conference on Undergraduate Research in Lexington, KY.

2013 vs. 2014: Progress In A Nutshell

-79% Paid Summer Undergraduate Research Fellowships at OSU
+46% Fall Undergraduate Research Forum Presenters
+30% Summer Undergraduate Research Institute Participants
+17% Recipients registered for the weekly URO E-Newsletter
+7.5% Unique visits to the URO website
-4% Students who completed Research Theses

All of this progress could not have been accomplished without the hard work of URO staff, students, and collaborators. I greatly appreciate the many contributions of Helene Cweren, Jackie Lipphardt, Amanda Perrin, Roxanne Kaercher, Vicki Pitstick, Samara Rafert, plus a large crew of extremely enthusiastic volunteers and paid student assistants, including Jacob Bogart, Emily Schueller, Elizabeth Shisler, Radhika Tampi, Paige Trojanowski, Elizabeth Winter, Kevyn Wright, and more than 200 student volunteers who serve as Peer Research Contacts and ambassadors for our office.

We also acknowledge ongoing assistance from our Faculty and Student Advisory Committees, the Office of Academic Affairs, the Office of Research, and University Libraries. In particular, Dr. Wayne Carlson, Vice Provost and Dean of Undergraduate Education, deserves praise for his enthusiastic and very effective leadership on behalf of undergraduate researchers.

Ohio State’s increasingly talented pool of undergraduates, combined with world-class resources for research, continues to foster growth in faculty-directed student research projects. We are excited to support a campus-wide culture of helping students get involved in research.

Professor Allison A. Snow

Director
The Undergraduate Research Office (URO)

STRATEGIC VISION
We seek to integrate the dual missions of research and teaching at The Ohio State University, to enrich the undergraduate experience, and to become known as a national leader of campus-wide undergraduate research programs.

STRATEGIC MISSION
The Undergraduate Research Office coordinates opportunities for undergraduate students to engage in meaningful research at The Ohio State University, a top public research university. The URO promotes many types of research-related activities and events for students in all academic disciplines.

SHARED VALUES
As a unit of the Office of Undergraduate Education, we are committed to the core values of excellence and innovation, collaboration, community service, teamwork, inclusion and respect for diversity, integrity and personal accountability, openness, and trust.

BUDGET AND PERSONNEL
- 75% time Director
- Full-time Assistant Director
- Full-time Program Coordinator
- Full-time Program Assistant
- 50% time Graduate Administrative Assistant
- 5 part-time Undergraduate Assistants

Our budget for FY 2015 was $392,400 for salaries, benefits, fellowships, supplies, and services; our Program Assistant was funded by the Office of Undergraduate Education.

The Undergraduate Research Office offers year-round programming to facilitate and promote undergraduate research. We are a small office with a large mission that contributes to recruiting and educating highly motivated students in all fields of study. Much of our work is carried out in collaboration with other academic units. Our annual budget supports programs and events, computer services, publicity, brochures, maintaining the URO website, wages for part-time student workers, $21,000 for six summer research fellowships (matched by $21,000 from the Office of Research), and travel by the director and/or assistant director to one professional meeting per year.

In 2014, a new source of funding for undergraduate research became available to the URO. Approximately $300,000 or more of the university’s parking lease endowment revenue has been allocated annually to the Office of Undergraduate Education, to be used for undergraduate research funding awards that are distributed by the URO (see page 20). Other major sources of annual funding for undergraduate research include more than $762,000 for research thesis scholarships (distributed by Honors and Scholars to college committees), $25,000 for academic enrichment grants from the Undergraduate Student Government, summer programs offered by other units, and funds from many other programs. The annual Denman Undergraduate Research Forum is funded separately with support from corporate and private donors, the Office of Undergraduate Education, and the Office of Research.
2014 Personnel

**Director**
Dr. Allison A. Snow
Department of Evolution, Ecology, & Organismal Biology

**Assistant Director**
Helene Cweren

**Program Coordinator**
Jackie Lipphardt

**Program Assistant**
Amanda Perrin

**Graduate Administrative Associate**
Roxanne Kaercher

**Undergraduate Assistants**
Jacob Bogart (through May)
Emily Schueller
Elizabeth Shisler
Radhika Tampi (through July)
Paige Trojanowski (beginning August)
Elizabeth Winter (beginning August)
Kevyn Wright

2014-15 Faculty Advisory Committee

<table>
<thead>
<tr>
<th>Name</th>
<th>Department/Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allison Snow</td>
<td>Chair, Director of the Undergraduate Research Office</td>
</tr>
<tr>
<td></td>
<td>Department of Evolution, Ecology, and Organismal Biology</td>
</tr>
<tr>
<td>James Kinder</td>
<td>Department of Animal Sciences</td>
</tr>
<tr>
<td>Kendra McSweeney</td>
<td>Department of Veterinary Preventative Medicine</td>
</tr>
<tr>
<td>Sarah Schoppe-Sullivan</td>
<td>Department of Geography</td>
</tr>
<tr>
<td>Amanda Simcox</td>
<td>Department of Human Development and Family Science</td>
</tr>
<tr>
<td>Karl Whittington</td>
<td>Department of History of Art</td>
</tr>
<tr>
<td>Jessica Winter</td>
<td>Department of Biomedical Engineering</td>
</tr>
<tr>
<td>Linn Van Woerkom</td>
<td>Associate Provost and Director of the Honors &amp; Scholars Center</td>
</tr>
<tr>
<td></td>
<td>Department of Physics</td>
</tr>
</tbody>
</table>

_Ex Officio Members:_

<table>
<thead>
<tr>
<th>Name</th>
<th>Department/Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wayne Carlson</td>
<td>Vice Provost and Dean for Undergraduate Education</td>
</tr>
<tr>
<td></td>
<td>Department of Interior, Industrial, and Visual Communication Design</td>
</tr>
<tr>
<td>Janet Weisenberger</td>
<td>Senior Associate Vice President, Office of Research</td>
</tr>
<tr>
<td></td>
<td>Department of Speech and Hearing</td>
</tr>
</tbody>
</table>
2014–15 Student Advisory Committee

Co-Chairs
B. Rashmi Borah  Microbiology, Philosophy
David Danesh  Microbiology

Secretary
Emily Schueller  Anthropology

Members
Rachael Billock  Microbiology
Katie Daehn  Materials Science and Engineering
Zach Davidson  Biology, Public Health
J. Riley DeBacker  Speech and Hearing Science
Annelise Del Rio  Zoology
Sam Dubin  Neuroscience
Andy Goldschmidt  Physics
Jessica Haushalter  Psychology, Neuroscience
Chelsea Hinshaw  Anthropology
Cory Howard  Animal Science
Greg Kemper  Microbiology
Sohom Manna  Biomedical Science
Kara Mattioli  Engineering Physics
Jeremy Maylath  Neuroscience
Daniel Moussa  Biomedical Science
Ryan Niemocienski  Computer Science and Engineering
Samantha Parsons  Animal Science
Victoria Parsons  Public Affairs
Tia Rahman  Psychology
Yilu Sun  Communication/Economics
Metrics of Participation in Undergraduate Research

The best indices we have found for evaluating trends in the numbers of undergraduate researchers at Ohio State include the number of students enrolled for credit in research and the number of research theses completed (Table 1). We view these data as indicators of research activity rather than comprehensive measures. A complete accounting of undergraduate research is difficult because not all research projects culminate in a thesis or a presentation, and research activity may go unreported by academic departments or colleges. Each year, many undergraduates are coauthors of journal publications and papers presented at professional meetings, but we have no reliable methods for monitoring all of these achievements. Nonetheless, the metrics presented here should be indicative of overall trends.

For simplicity, we report data for only the Columbus campus unless noted otherwise, recognizing that undergraduate research also is promoted at our regional campuses. Data on admissions, enrollments, and completed degrees were provided by Enrollment Services – Analysis and Reporting, (http://oesar.osu.edu/). Data are for the calendar year 2014 unless noted otherwise.

**TOTAL STUDENTS ENROLLED**

During the past three years, the total undergraduate enrollment increased by 4%, to **44,741**, while the proportion of Honors students declined from 13.1% to 9.4% (Table 1). This reflects the University’s long-term plan to reduce Honors enrollments while promoting excellent educational enrichment for all students. In Autumn 2014, 95% of all incoming freshman were in the top 25% of their high school class, and 61% were in the top 10%.

**ENROLLMENTS FOR RESEARCH CREDIT**

Here we report data on the numbers of students registered for faculty-mentored research courses during each academic year (Table 1B). Note that students who enrolled for multiple semesters were counted more than once in these summaries. Overall enrollment for research credit **increased by 20%** between 2013 and 2014, while the size of the student population increased by only 1.2% (Table 1A). The 8% increase in thesis research credits was not reflected in numbers of completed theses, however (Table 1C).

Course enrollments based on academic quarters are not directly comparable to enrollments during semesters, but steady gains also were seen under quarters in 2004-2012 (Table 1B).

**RESEARCH THESES COMPLETED**

In the 2013-2014 Academic Year, **350 students** completed a research thesis, down from 364 in the previous year (Table 1B). 28% of these students graduated with “Research Distinction,” 68% with “Honors Research Distinction,” and 4% were in majors that simply offer “Distinction” (Table 2).

Half of all research theses were completed by students in the Arts and Sciences, while 17% were written by Engineering majors (Table 3). To some extent, the numbers of students who completed a thesis or poster presentation reflect enrollment patterns in each discipline, although Arts and Sciences majors represent only 38% of the total student population and are over-represented in research accomplishments, while business majors represent about 13.6% of the student population and rarely complete a research thesis or Denman Forum presentation (based on Spring 2014 OESAR enrollment data, available at http://oesar.osu.edu/student_enrollment.aspx).
FORUM PRESENTATIONS

The Denman Undergraduate Research Forum, created in 1996, continues to be our most visible, esteemed, and high-impact tradition for promoting undergraduate research. Starting in 2014, participation in the Denman Forum was “capped” based on available space in the RPAC, so we no longer use the number of Denman participants to track increases in the numbers of students involved in research.

In 2014, the Forum included 629 students, representing 560 projects (Table 1D). As in previous years, about half of the presenters were students majoring in the Arts and Sciences, similar to the pattern for research theses (Table 3).

The Fall Undergraduate Research Student Poster Forum, which is organized by the URO to showcase summer undergraduate research accomplishments, reached an all-time high of 228 students in 2014 (46% more than 2013). This increase was likely due to the large increase in summer research fellowships from parking lease endowment funds, as discussed elsewhere in this report.

Several colleges, departments, and programs also sponsor undergraduate research forums, including the Arts and Sciences Division of Natural Science and Mathematics Undergraduate Research Forum, with 90 students in 2014. Overall, we estimate that at least 1,241 student presentations were given at Ohio State in 2014 (Table 4). Students in creative and performing arts also participate in capstone exhibitions and events that are not captured by these numbers.

STUDENTS IN PAID SUMMER RESEARCH PROGRAMS

In 2014, we identified 328 OSU students who participated in various summer research programs at Ohio State, compared to 183 in 2013, for an increase of 79% (Table 5). Much of this increase (89 students) was due to new parking lease endowment funds that have been allocated to the Office of Undergraduate Education. Other increases include those in the Department of Chemistry and Biochemistry (54 students), Pelotonia Fellowships for cancer research, and the Departments of Animal Sciences and Plant Pathology.

Most of these students received stipends for full-time research with an Ohio State faculty member. Given the very high demand for summer research opportunities, we hope to see the numbers of funded programs increase further through departmental contributions, extramural funding, and contributions from donors. An unknown number of students are funded by individual faculty members or off campus programs, such as those at other universities or national research labs; these students are not included in Table 5.

FACULTY WHO USED THE URO WEBSITE FORM TO FIND STUDENT RESEARCHERS

In 2014, 99 faculty members used our targeted email announcements to find undergraduate researchers, compared to 95 faculty members in 2013. We continue to receive positive feedback about their success in finding talented, well-matched students as a result of our announcements. We hope the number of faculty using our services will continue to rise as more faculty, postdoctoral researchers, and senior-level graduate students learn about our activities. This approach is especially useful for new faculty members and for those in the College of Medicine and other large research centers who have little direct contact with undergraduate students.

NATIONAL CONFERENCE ON UNDERGRADUATE RESEARCH

In 2014, Ohio State sent 44 undergraduate researchers—one of the largest delegations to attend—to the National Conference on Undergraduate Research (NCUR), held April 3-5, 2014 in Lexington, Kentucky. This gathering of young scholars allowed Ohio State undergraduate researchers the chance to share their research at a national conference, thanks to a one-time $12,000 grant from The Office of Undergraduate Education and generous contributions from the College of Nursing, College of Arts and
Sciences, and the Newark campus.

**STEP—SECOND-YEAR TRANSFORMATIONAL EXPERIENCE PROGRAM**

The Second-year Transformational Experience Program (STEP), a program to improve the second-year student experience and provide opportunities for students to take part in co-curricular enrichment activities, was launched in the 2013-2014 academic year. Students in the program have the option of participating in one of 6 educational-enrichment experiences, including undergraduate research. 71 of the approximately 700 students in the 2013-2014 cohort chose undergraduate research as their enrichment experience.

**PURE—PORTFOLIO OF UNDERGRADUATE RESEARCH EXPERIENCES**

In Summer 2014, the URO worked with ESUE IT to launch PURE, the Portfolio of Undergraduate Research Experiences, which is an online tool to track and record undergraduate research involvement, awards, presentations, publications and service at Ohio State.

PURE is a SQL Server 2012 database using a Windows 2012R2 operating system and is part of a Microsoft Cluster. Reports are generated using SQL Server Reporting Services; the data used in the reports is derived from the PURE computer application and a data warehouse that is hosted by the office of the OCIO.

Data is entered into PURE from three sources: student input, URO gathered institutional information, and data from OSU People Soft. The best data come directly from students engaged in undergraduate research. The URO reaches out to participating students to prompt them to enter detailed information each semester on their research involvement. Each experience is tied to an individual faculty advisor and can include information about publications, presentations, or thesis work.

The URO also has access to a great deal of institutional data from campus forum participation, research funding awards, and Peer Research Contact volunteers. This information can be input by URO staff through a “backend” port. In addition, student information from the SIS system is downloaded to PURE to populate information about majors and demographic data. Data that previously remained separate can now be combined through PURE for a more complete overview of undergraduate research activities at OSU.

The PURE reporting system is still being designed and implemented, but preliminary information shows 442 students recorded experiences in Summer Term 2014 and 338 in Autumn Semester 2014. The URO periodically contacts undergraduate researchers and advisors to increase the amount and quality of data collected through PURE. We anticipate being able to share new analysis and summary information in next year’s Annual Report.
Table 1. Overall student participation in undergraduate research, 2004-2014

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A) Total students enrolled and percent Honors students</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total number of students</td>
<td>37,509</td>
<td>38,479</td>
<td>40,212</td>
<td>42,082</td>
<td>43,058</td>
<td>44,201</td>
<td>44,741</td>
</tr>
<tr>
<td>Percent Honors students</td>
<td>13.6</td>
<td>12.9</td>
<td>13.0</td>
<td>14.3</td>
<td>13.1</td>
<td>11.1</td>
<td>9.4</td>
</tr>
<tr>
<td><strong>B) Number of students enrolled for research credit</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(per academic year; AY2014 is Summer 2013-Spring 2014)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thesis Research Credits</td>
<td>783/4999 Th</td>
<td>701 Quarters</td>
<td>680 Quarters</td>
<td>660 Quarters</td>
<td>792 Quarters</td>
<td>857 Quarters</td>
<td></td>
</tr>
<tr>
<td>Research Credits</td>
<td>699/4998,</td>
<td>66</td>
<td>148</td>
<td>687</td>
<td>1090</td>
<td>1597</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3998,2998</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>767</td>
<td>828</td>
<td>1347</td>
<td>1882</td>
<td>2454</td>
<td></td>
<td>1907</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2296</td>
</tr>
<tr>
<td><strong>C) Number of research theses</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(per academic year; AY2014 is Summer 2013-Spring 2014)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total number of theses</td>
<td>292</td>
<td>277</td>
<td>285</td>
<td>292</td>
<td>339</td>
<td></td>
<td>369</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>350</td>
</tr>
<tr>
<td><strong>D) Number of Denman Undergraduate Research Forum presenters</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total number of students</td>
<td>276</td>
<td>354</td>
<td>415</td>
<td>540</td>
<td>582</td>
<td></td>
<td>723</td>
</tr>
<tr>
<td>Percent Honors students</td>
<td>77</td>
<td>66</td>
<td>71</td>
<td>64</td>
<td>54</td>
<td></td>
<td>47</td>
</tr>
</tbody>
</table>

1 Data on admissions, enrollments, and completed degrees provided by Enrollment Services – Analysis and Reporting, (http://oesar.osu.edu/) and represent the Columbus campus only.
2 Students were counted more than once if they enrolled more than once in the same academic year.
3 Comparing enrollments from quarters to the new semester system is difficult, especially given that students may enroll in more courses per semester, but also may be constrained by having to pay extra tuition if they enroll for more than 18 credits. Therefore, we will use 2012-2013 as a new baseline going forward.
4 Includes categories of Distinction, Research Distinction, and Honors Research Distinction; see Table 2.
5 Note that participation in the Denman Forum was “capped” starting in 2014 due to limited space in RPAC.
### Table 2. Numbers of students graduating with Distinction\(^1\)\(^2\)

<table>
<thead>
<tr>
<th>Transcript Designations</th>
<th>AY 2013 SU 2012-SP 2013</th>
<th>AY 2014 SU 2013-SP 2014</th>
<th>Percent Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Distinction (D)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(includes Performing Arts, Pharmacy, and Math)</td>
<td>21</td>
<td>14</td>
<td>-20%</td>
</tr>
<tr>
<td><strong>Research Distinction (RD)</strong></td>
<td>112</td>
<td>98</td>
<td>-12.5%</td>
</tr>
<tr>
<td><strong>Honors Research Distinction (HRD)</strong></td>
<td>236</td>
<td>238</td>
<td>+1%</td>
</tr>
<tr>
<td><strong>Total D, RD, HRD Designations</strong></td>
<td>369</td>
<td>350</td>
<td>-5%</td>
</tr>
<tr>
<td><strong>Total Students with D, RD, or HRD</strong></td>
<td>364</td>
<td>350</td>
<td>-4%</td>
</tr>
</tbody>
</table>

\(^1\)Those students who completed a thesis received the designation of “Research Distinction” or “Honors Research Distinction” on their transcript. We also included “Distinction” because this should be comparable to a thesis in most cases.

\(^2\)Source: OSU Registrar, compiled by A. Snow.
Table 3. Percent of theses and Denman poster presenters by discipline, 2011-2014\(^1\)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts and Sciences</td>
<td>56%</td>
<td>55%</td>
<td>51%</td>
<td>50%</td>
<td>57%</td>
<td>62%</td>
<td>53%</td>
<td>55%</td>
</tr>
<tr>
<td>Natural &amp; Math. Sciences</td>
<td>19</td>
<td>20</td>
<td>17</td>
<td>16</td>
<td>32</td>
<td>35</td>
<td>29</td>
<td>30</td>
</tr>
<tr>
<td>Social &amp; Behav. Sciences</td>
<td>21</td>
<td>16</td>
<td>20</td>
<td>19</td>
<td>14</td>
<td>17</td>
<td>17</td>
<td>20</td>
</tr>
<tr>
<td>Arts &amp; Humanities</td>
<td>15</td>
<td>17</td>
<td>14</td>
<td>14</td>
<td>7</td>
<td>20</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Engineering</td>
<td>14</td>
<td>17</td>
<td>17</td>
<td>16</td>
<td>15</td>
<td>11</td>
<td>19</td>
<td>19</td>
</tr>
<tr>
<td>Food, Ag., and Env. Sciences</td>
<td>6</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>8</td>
<td>9</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>Health &amp; Rehab. Sciences (formerly Allied Medical Professions)</td>
<td>5</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>10</td>
<td>7</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>Education and Human Ecology</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Nursing</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Architecture</td>
<td>5</td>
<td>4</td>
<td>6</td>
<td>8</td>
<td>2</td>
<td>&lt;1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>1</td>
<td>&lt;1</td>
<td>2</td>
<td>&lt;1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Business</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Social Work</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Total number of theses or presenters</td>
<td>314</td>
<td>339</td>
<td>369</td>
<td>350</td>
<td>580</td>
<td>582</td>
<td>723</td>
<td>629(^2)</td>
</tr>
</tbody>
</table>

\(^{1}\)Based on the college or school of the student’s major; theses listed per academic year; AY2014 is Summer 2013-Spring 2014, etc.

\(^{2}\)Note that participation in the Denman Forum was “capped” starting in 2014 due to limited space in RPAC.
Table 4. Number of research and creative activity presentations at Ohio State, 2012-2014

<table>
<thead>
<tr>
<th>Term</th>
<th>Event</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring</td>
<td>Denman Undergraduate Research Forum</td>
<td>582</td>
<td>723</td>
<td>629</td>
</tr>
<tr>
<td>Autumn</td>
<td>URO Fall Undergraduate Research Forum</td>
<td>124</td>
<td>156</td>
<td>228</td>
</tr>
<tr>
<td>Spring</td>
<td>ASC Natural &amp; Math. Sciences Undergraduate Research Forum</td>
<td>88</td>
<td>119</td>
<td>90</td>
</tr>
<tr>
<td>Spring</td>
<td>College of Engineering Undergraduate Research Forum</td>
<td>19</td>
<td>84</td>
<td>43</td>
</tr>
<tr>
<td>Spring</td>
<td>College of Food, Agr., &amp; Env. Sciences Undergrad. Research Forum</td>
<td>41</td>
<td>32</td>
<td>31</td>
</tr>
<tr>
<td>Spring</td>
<td>Neuroscience Undergraduate Research Colloquium¹</td>
<td>-</td>
<td>31</td>
<td>38</td>
</tr>
<tr>
<td>Spring</td>
<td>Dept. of Psychology Undergrad Research Colloquium²</td>
<td>21</td>
<td>26</td>
<td>23</td>
</tr>
<tr>
<td>SP/AU</td>
<td>Building Momentum in STEM Research</td>
<td>-</td>
<td>-</td>
<td>21</td>
</tr>
<tr>
<td>Autumn</td>
<td>College of Pharmacy Research Day</td>
<td>11</td>
<td>15</td>
<td>5</td>
</tr>
<tr>
<td>Spring</td>
<td>Lima Campus Undergraduate Research Forum</td>
<td>13</td>
<td>12</td>
<td>11</td>
</tr>
<tr>
<td>Autumn</td>
<td>Mansfield Campus Undergraduate Research Forum</td>
<td>17</td>
<td>12</td>
<td>14</td>
</tr>
<tr>
<td>Spring</td>
<td>Arts Scholars Juried Exhibition</td>
<td>13</td>
<td>11</td>
<td>13</td>
</tr>
<tr>
<td>Spring</td>
<td>Newark Campus Undergraduate Research Forum</td>
<td>14</td>
<td>10</td>
<td>17</td>
</tr>
<tr>
<td>Summer</td>
<td>School of Earth Sciences—Shell Undergraduate Poster Forum</td>
<td>14</td>
<td>10</td>
<td>13</td>
</tr>
<tr>
<td>Summer</td>
<td>Young Mathematicians Conference³</td>
<td>-</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>Spring</td>
<td>Davis Heart &amp; Lung Research Institute Research Day³</td>
<td>-</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Spring</td>
<td>Dept. of Dance Senior Thesis Presentations</td>
<td>20</td>
<td>7</td>
<td>10</td>
</tr>
<tr>
<td>Spring</td>
<td>Ohio State Medical Center Research Day</td>
<td>6</td>
<td>6</td>
<td>15</td>
</tr>
<tr>
<td>Autumn</td>
<td>Neuroscience Program Poster Day⁴</td>
<td>-</td>
<td>5</td>
<td>-</td>
</tr>
<tr>
<td>Spring</td>
<td>Dept. of East Asian Lang. &amp; Lit. Undergraduate Research Forum</td>
<td>7</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>Summer</td>
<td>Mathematical Biosciences Institute Capstone Conference³</td>
<td>-</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Summer</td>
<td>Ohio Undergraduate Research Symposium/SROP Ohio State (sponsored by the Graduate School)</td>
<td>0</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Spring</td>
<td>College of Education &amp; Human Ecology Honors Poster Presentations⁵</td>
<td>3</td>
<td>-</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td></td>
<td>1</td>
<td>8</td>
</tr>
</tbody>
</table>

Total Number of Students⁶,⁷ | 990 | 1288 | 1241 |

¹New event in 2013
²New event in 2014
³Began recording participation in 2013
⁴Did not occur in 2014
⁵Number of undergraduate presenters not available for 2013
⁶Some students presented at more than one event.
⁷Totals are different than reported in earlier years due to additional data on student presentations from previous years and removal of Dept. of Art BFA exhibitions from this list.
Table 5. Total summer undergraduate research fellowships at Ohio State, 2011-2014

<table>
<thead>
<tr>
<th>Year</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Number of Ohio State Students (5a + 5b)¹</td>
<td>185</td>
<td>212</td>
<td>183</td>
<td>328</td>
</tr>
</tbody>
</table>

Table 5a. Summer undergraduate research fellowships at Ohio State, 2011-2014 (using URO Common Application)

<table>
<thead>
<tr>
<th>Program</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>URO Summer Research Fellowships</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>Psychology—URO Summer Undergraduate Research Fellowships</td>
<td>8</td>
<td>13</td>
<td>11</td>
<td>7</td>
</tr>
<tr>
<td>EEOB—URO Summer Undergraduate Research Fellowships</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Economics—URO Summer Undergraduate Research Fellowships</td>
<td>-</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Holbrook Research Abroad Fellowships</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>University Honors Summer Research Scholarships</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Mayers Summer Research Scholarships</td>
<td>20</td>
<td>35</td>
<td>25</td>
<td>22</td>
</tr>
<tr>
<td>(Natural &amp; Mathematical Sciences, Arts and Sciences)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Undergraduate Education Summer Research Fellowships²</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>89</td>
</tr>
<tr>
<td><strong>Table 5a Subtotal</strong></td>
<td><strong>50</strong></td>
<td><strong>74</strong></td>
<td><strong>61</strong></td>
<td><strong>143</strong></td>
</tr>
</tbody>
</table>

¹Number of Ohio State students with scholarships, fellowships, or stipends; typically 10 weeks at 40 hours/week

²New funding source in 2014
## Table 5b. Summer undergraduate research fellowships at Ohio State, 2011-2014 (all other units)

<table>
<thead>
<tr>
<th>Program</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Heart Assoc. Summer Undergrad. Research Fellowships¹</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>-</td>
</tr>
<tr>
<td>Beckman Scholars Program²</td>
<td>5</td>
<td>2</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Center for Population Health and Health Disparities Undergrad.</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Summer Internships</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CIC Summer Research Opportunities Program (SROP)²¹²</td>
<td>5</td>
<td>-</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>College of Dentistry Undergraduate Research Program—Dr. Rudy Melfi</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Research Fellowships</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Center of Excellence in Regulatory Tobacco Science Summer Internships³</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>Dept. of Animal Science Summer Research Program³</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>11</td>
</tr>
<tr>
<td>Engineering Experimental Station Internships</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>NSF REU—Center for Emergent Materials²</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>NSF REU—Mathematical Biosciences Institute²</td>
<td>2</td>
<td>9</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>NSF REU—Molecular Genetics &amp; Biochemistry</td>
<td>4</td>
<td>5</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>NSF REU—Nanoscale Science &amp; Engineering Center</td>
<td>1</td>
<td>10</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>NSF REU—Stone Laboratory</td>
<td>7</td>
<td>3</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Ohio State Biomedical Informatics Undergraduate Internships</td>
<td>6</td>
<td>4</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Physics Summer Research Interns</td>
<td>8</td>
<td>9</td>
<td>11</td>
<td>16</td>
</tr>
<tr>
<td>Summer Research Internships in Plant Pathology¹</td>
<td>4</td>
<td>-</td>
<td>7</td>
<td>16</td>
</tr>
<tr>
<td>Shell Undergraduate Research Experience in Earth Sciences</td>
<td>11</td>
<td>15</td>
<td>10</td>
<td>13</td>
</tr>
<tr>
<td>Summer Undergraduate Research Fellowships in the Pharmaceutical Sciences</td>
<td>2</td>
<td>4</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Summer Undergraduate Research Program in Astrophysics</td>
<td>4</td>
<td>6</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Summer Undergraduate Research Program in the Department of Chemistry and</td>
<td>19</td>
<td>29</td>
<td>27</td>
<td>54</td>
</tr>
<tr>
<td>Biochemistry</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Undergraduate Pelotonia Fellows (OSU Comprehensive Cancer Center)</td>
<td>35</td>
<td>21</td>
<td>24</td>
<td>31</td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

| **Table 5b Subtotal** | 135 | 138 | 122 | 185 |

¹Program did not occur/no funding for program in year(s) with “-” listed.

²Program did occur at OSU in years with “0” listed, but no OSU students were in the program.

³New program in 2014
Year-Long Programming for Ohio State Undergraduates

OVERVIEW
The URO offers an extensive year-long cycle of programs to encourage and support student participation in research. In 2014, we sponsored 80 events (see Table 6 below for a list of programs and panels by semester) in addition to being invited to participate in another 134 campus programs. Together, these activities included presentations to 39 freshman survey classes, staffing tables at ten campus fairs, speaking to 28 summer orientation groups of incoming students and their parents, and supporting more than 60 invitations by other campus groups. We estimate that we were able to reach more than 6,000 students through our workshops, events, and short presentations. Autumn Semester presentations to freshmen survey courses alone reached approximately 2,150 students, representing one-third of the entering class.

Table 6. URO Programs in Spring and Autumn Semesters of 2014

<table>
<thead>
<tr>
<th>Programs</th>
<th>Spring</th>
<th>Autumn</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Informational Presentations/Workshops</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guidelines for Keeping a Good Lab Notebook</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Join the Research Conversation (with University Libraries)</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Information Sessions (8 in Spring, 12 in Autumn)</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>OSU Summer Research Fair</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Poster Presentation Basics</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>IRB Training for Undergraduates (1-2 sessions each term)</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>JUROS: Steps to Publishing Undergrad Research</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td><strong>Student Panels</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First Year Experience Success Series (6 sessions)</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>International Research Panel</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Spilling the Beans: The Secrets of Undergrad Research</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>URO-JUROS Meet and Greet</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Peer-to-Peer Summer Proposal Help Sessions (3)</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Research Thesis Info Session</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Finding/Applying for Summer STEM Programs (2)</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td><strong>Faculty Panels</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Faculty Perspectives on Undergraduate Research</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Recipe for Success: Basic Ingredients for Undergraduate Research</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td><strong>Denman Forum Workshops</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intro to the Denman Forum</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Preparing and Presenting a Winning Poster (5)</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>
PROGRAMS
We continue to offer a full slate of programs each semester. In 2014, we had 22 spring, 27 summer, and 32 fall URO sponsored or co-sponsored events on our calendar. Scheduled programs contain many repeat events, with a few new or previously offered programs sprinkled in. For example, information sessions and an international research panel are featured regularly, while in 2014 we added a new program called “Discover Economics Research” and peer-to-peer proposal advising sessions.

While the number of programs we offer each semester is relatively stable, we have seen an increase in the number of offices across campus offering independent research-promoting events for targeted populations or seeking a partnership with the URO to offer such programs. See “Year-Round Collaborators” on page 19 for a complete list.

ADVISING
In addition to scheduled programs, we offer individual advising, both walk-in and by appointment. In 2014, our staff and student assistants served approximately 100 students in our offices.

URO Peer Research Contacts, who receive coaching and supervision from our office, are also available to students who have questions about getting started. More than 220 Peer Research Contacts are listed by discipline on our website. These student researchers reported answering more than 100 student email inquiries in 2014.

We also offer peer advising ten hours a week in Thompson Library during spring and fall semesters. Thompson Library’s central location and large student traffic provide an excellent opportunity to extend outreach and help more students learn how to get started in research. Library Advising took off in 2014, reaching 234 students.

EVALUATIONS
We distribute, collect, and summarize evaluation forms at each URO-sponsored event. This feedback has been helpful in improving and planning future programs. The URO Student Advisory Committee, which meets twice each term, also gives feedback on events and advice on proposed programs.

STUDENT INVOLVEMENT IN THE URO
Students’ enthusiastic participation is an essential part of the URO. Interested students have the option of getting involved as Peer Research Contacts, Student Advisory Committee Members, staff of the Journal of Undergraduate Research at Ohio State (JUROS), panel speakers, and volunteers at URO-sponsored events. We host a celebration each spring to recognize the many contributions of our students to Ohio State’s undergraduate research programs.

The URO continuously promotes student involvement through a variety of means. Once per year there is a formal call for new Peer Research Contacts, where experienced undergraduate researchers are invited to get involved with the URO. Potential students are identified through venues like the Denman Undergraduate Research Forum, the Summer Undergraduate Research Institute (SURI), winners of research funding and awards, and the URO listserv. In addition, informal identification of good undergraduate research leaders is a year-round effort, especially in disciplines where greater representation is needed. To accomplish this, URO staff also attend student poster forums around campus to speak directly with students about their research and about their interest in becoming more active within the URO.
PRESENTATIONS AND FAIRS
In 2014, URO staff and volunteers participated in ten campus fairs, arranged 39 presentations to freshman survey courses, and accepted 60 other invitations to talk about undergraduate research at OSU.

The URO continues to make presentations to the Preferred Pathway students at Columbus State and other Columbus State students who will be transferring to Ohio State. Likewise, the URO made 28 presentations to freshman and transfer orientation students and their families during summer 2014.

The URO is often invited to educate new undergraduate advisors throughout the campus about our office and the resources available to help students get started in research at Advisor Training Sessions sponsored by the Office of Undergraduate Education.

AUTUMN SEMESTER
Much of our effort during the Autumn Semester is devoted to outreach to new students on campus. In Autumn 2014, we gave 38 presentations to freshman survey classes, hosted eight First Year Experience Success Series programs, gave two talks at the Honors & Scholars Center, and participated in nine campus fairs.

The main URO event during Autumn Semester is the Fall Undergraduate Research Week and Student Poster Forum, held on Thursday, September 18, 2014 in the Thompson Library. This year’s forum included three sessions, each offering participating students 1 ½ hours of poster time to present their summer research. The new 3-session format was necessary to accommodate growth of the forum within the available space at Thompson Library and proved very successful!

The 2014 Fall Undergraduate Research Student Poster Forum was again co-sponsored by University Libraries, a significant partnership for the URO. The purpose of Fall Undergraduate Research Week and Student Poster Forum is twofold: to allow students to present research from the previous summer, and to introduce incoming students to research opportunities at Ohio State. In 2014, 228 students presented 226 posters (47% increase over 2013 corresponding to an increase in SURI participation—see below), and an estimated 900 students, staff, faculty and guests attended and viewed the Poster Forum; 209 students attended the four programs scheduled during Research Week.

Based on survey responses from 82 student presenters (36% response rate), we found:

- 94% were 3rd year students or higher
- 62% were presenting a poster for the first time
- 89% reported that they had been conducting their research for a year or more
- 89% expected to continue with their research in the coming semesters
- 60% utilized the URO’s website when working on their poster
- 54% reported that their faculty advisor stopped by to see their poster at the Forum
- 94% ranked the overall quality of the Poster Forum as above average or excellent

While the forum is not a judged event, the URO has endeavored to provide formal feedback on posters and presentations in an effort to make the experience more meaningful. We recruited and organized a group of 155 volunteer undergraduates, graduate students, post-doctoral researchers, and staff members to provide written feedback to student presenters.
SPRING SEMESTER
The highlight of Spring Semester is the annual Denman Undergraduate Research Forum. The URO assumes the role as principal coordinator for planning, publicizing, and hosting this nationally recognized juried event. The URO hosts workshops for Denman Forum participants and markets the event on campus; publicity posters and ads are distributed to encourage students to participate in the Denman and to encourage the campus community to attend the forum.

629 students presented 560 posters in 11 different categories at the 2014 Denman, and approximately 520 faculty, staff, and post-doctoral researchers judged student poster presentations on the day of the Forum. Each poster presentation was judged 3 times, and judges award points and leave written feedback for the students. Each student’s written feedback on his/her presentation was returned to them after the Forum.

$21,100 in award money was given out to 73 student projects in 11 different categories at the 2014 Forum. The URO also gives out awards to recognize the important role of faculty, post-doctoral researchers, and graduate students who mentor undergraduate researchers: five tenure-track faculty were given plaques for being Distinguished Undergraduate Research Mentors and two Outstanding Research Mentor plaques were awarded to non-tenure track faculty, post-doctoral researcher, or graduate student mentors (Appendix D).

SUMMER TERM – THE SUMMER UNDERGRADUATE RESEARCH INSTITUTE
The Summer Undergraduate Research Institute (SURI) provides ongoing communication, support, professional development and social programs, and a sense of community for undergraduate researchers on campus during Summer Term. Ohio State students, undergraduates from other universities who are accepted into formal, structured research programs at OSU, and those working independently with an OSU faculty mentor are all welcome to participate. We also encourage registration from Ohio State undergraduates conducting research off campus (e.g. at other universities or abroad), as a mechanism for staying in touch via email and including them in the Fall Undergraduate Research Student Poster Forum.

SURI 2014 was the sixth year of the program and included 562 total students, an increase of 167 students or 42% compared to 2013. This sizable increase was in large part due to an increase in summer undergraduate research fellowships available to Ohio State undergraduates—growing from 181 to 329 (see Table 5).

The increase in OSU funded students also helps to explain other changes in SURI demographics. There was a decline in the percentage of students from other universities—only 14% compared with 19% in the two previous years, and an increase in students participating in paid, formal programs, up from 62% to 76%.

Non-STEM student researchers more than doubled to 13% of SURI participants. The larger amount of funding available to OSU undergraduates is especially beneficial to students outside of STEM disciplines.

Table 7. Participation in SURI 2011-2014

<table>
<thead>
<tr>
<th>Participation in SURI</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of participants</td>
<td>336</td>
<td>371</td>
<td>395</td>
<td>511</td>
</tr>
<tr>
<td>Change from previous year</td>
<td>+20%</td>
<td>+10%</td>
<td>+7%</td>
<td>+30%</td>
</tr>
<tr>
<td>in formal programs</td>
<td>69%</td>
<td>70%</td>
<td>62%</td>
<td>74%</td>
</tr>
<tr>
<td>from other universities</td>
<td>13%</td>
<td>19%</td>
<td>19%</td>
<td>12%</td>
</tr>
<tr>
<td>in STEM disciplines</td>
<td>85%</td>
<td>90%</td>
<td>94%</td>
<td>87%</td>
</tr>
</tbody>
</table>
because fewer formal research programs or funding opportunities are available to them.

**SURI Recruitment**
Recruitment for SURI occurs during the Spring Semester when campus-wide communication is still possible. To reach potential participants, we take a two-pronged approach. First, we invite all summer research programs on campus (25 in 2014) to be listed as official supporters of and partners in SURI. Supporting programs share their lists of summer undergraduate students and email addresses, allowing us to contact and recruit our target audience; 76% of SURI 2014 participants were from these formal programs.

Second, we directly recruit undergraduates through our standard communication channels, such as the URO email listserv, OnCampus Weekly, campus advisors, Honors & Scholars Weekly, etc. A drawing for Barnes and Noble gift certificates was again used as an incentive to encourage self-registration in SURI by students who were not part of a formal program or receiving full-time summer funding. 137 of these students working independently joined SURI.

**SURI Programming**
Summer programming, conducted over a 10 week period from May 27—August 1, emphasized not only professional development opportunities but also social and sports activities. Sports activities and 2-3 programs were offered each week, including the following, listed in the order of most to least attended:

- Kickoff Celebration
- Resumes and Cover Letters Workshop
- Personal Statement Workshop
- Abstract Writing Workshop
- Graduate and Professional Student Panel
- Crafting a Successful Grad School Application
- Poster Presentation Workshop
- Campus Lab and Facility Tours
- NSF Fellowships (sponsored by the Center for Emergent Materials)
- National-Level Fellowships
- Strategies for Finding Scientific Literature
- What Can I Do with a PhD? (sponsored by the Center for Emergent Materials)
- Ethics Discussion with Bioethics Society

The URO continues to partner with other offices across campus to provide expertise and present many of the SURI professional development workshops. Increased cross-campus cooperation and awareness of undergraduate research on campus continues to be a positive outcome of SURI.

Each summer, the URO tries to infuse some fun, educational programming into the schedule. In 2014, we organized four campus lab and facility tours to the following:

- Byrd Polar Research Center
- Billy Ireland Cartoon Library
- Neuroscience Lab
- Biological Greenhouse

Continuing a tradition, SURI 2014 featured weekly brown bag lunches, four of which included faculty member guests. Like the campus lab and facility tours, these brown bag lunches provide students the opportunity to regularly discuss relevant topics and socialize in small groups.
Sports participation continued to be extremely popular with 259 (51%) of SURI students indicating an interest in getting involved in sports at the beginning of summer. The URO helped students establish five intramural soccer teams, four intramural sand volleyball teams, one intramural softball team, three yoga or meditation opportunities, a set time for pick-up sand volleyball games, ultimate Frisbee games, tennis matches, rock wall climbing, biking and hiking, and two set running groups. Sports involvement continued to provide an excellent way for student researchers to balance their time doing research, manage stress, and meet one another over the summer semester. The following comments from students reinforce the significance of SURI sports activities:

“SURI sports were awesome. It was really fun to be able to have the opportunity to play them as well as meet others who were doing research this summer. It gave a nice break from some of the stresses of research.”

“Of course, the team also allowed me to meet new people, which invariably led to dialogue about our respective academic interests.”

In addition to the above events, SURI participants received weekly emails from our 2014 SURI coordinators, Amanda Perrin and Radhika Tampi. These emails included program updates and advice in the form of a “topic of the week.” This year’s topics included: Adjusting to the Researcher’s Lifestyle, How Your Mentor Can Help You Outside of Research, The Rocky Road of Research, Communication is Key, Being a Leader, Networking, Graduation School Applications, Medical School Applications, Words of Wisdom from Dr. Snow, and Sharing Your Experience with Others.

**SURI Assessment**

At the end of the Summer Semester, we administered an online exit survey, with an 11% response rate (61 replies).

- 90% indicated that the emails they received from the URO were helpful; the survey results confirm that email is the main source of information for SURI students.
- 61% indicated that they checked the website at least once during the summer, including 52% checked at least once a week.
- 67% reported meeting other undergraduate researchers through SURI.
- 88% reported that participating in research this summer changed or strengthened their professional or educational goals.
- 89% plan on continuing with research in the fall term.
- 82% said they would recommend SURI to other students.

While SURI is not a research program in and of itself, it clearly is successful in enhancing the research experience of those undergraduates who are researching over the summer term. SURI provides much needed organization, communication, and complimentary instruction to enable students to make the most of their summer research experiences. SURI is very successful at building a year-round culture that values and promotes undergraduate research at Ohio State.
YEAR-ROUND COLLABORATORS AND ACKNOWLEDGMENTS

We gratefully acknowledge the ongoing contributions and partnerships with the College of Arts and Sciences, College of Engineering, University Libraries, University Center for the Advancement of Teaching, Mershon Center for International Security Studies, Office of Diversity and Inclusion, Louis Stokes for Minority Participation Alliance, University Honors & Scholars Center, Office of International Affairs, Office of Responsible Research Practices, Office of Research, Office of Undergraduate Education, and the many departments and individuals across campus who assist with our programming and campus outreach.

We gratefully acknowledge Career Connection, University Center for the Advancement of Teaching, Center for Emergent Materials, the Undergraduate Fellowship Office, and University Libraries for conducting SURI workshops in 2014.
Funding Awards from URO

Funding for undergraduate research projects increased dramatically in 2014 (Table 8), primarily due to income from OSU’s parking lease funds, as noted below. We thank staff in the Office of Student Financial Aid, especially Julianna Belyn, for help with disbursing funds to these and other award winners. Appendix C includes a complete list of the 2014 awardees.

Table 8. Number of funding awards from URO, 2008-2014

<table>
<thead>
<tr>
<th>Award Name</th>
<th>2008</th>
<th>2010</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>UE Summer Research Fellowships</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>89</td>
</tr>
<tr>
<td>Research Scholar Awards</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>98</td>
</tr>
<tr>
<td>SOLAR Fund Awards</td>
<td>0</td>
<td>3</td>
<td>4</td>
<td>7</td>
<td>13</td>
</tr>
<tr>
<td>Conference Travel Awards</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>13</td>
</tr>
<tr>
<td>URO Summer Research Fellowships</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>Total</td>
<td>13</td>
<td>16</td>
<td>17</td>
<td>20</td>
<td>226</td>
</tr>
</tbody>
</table>

FUNDING FROM THE PARKING ENDOWMENT REVENUE

Starting in May 2014, earnings from the parking lease agreement were allocated to the Office of Undergraduate Education to promote undergraduate research. These funds are used exclusively for scholarships for undergraduates who are involved in research and creative activities in any discipline and are not used for other purposes such as staffing. More information about this Innovative Funding through the Parking Endowment Revenue and some of the students supported by these funds is available at http://innovativefunding.osu.edu/ and http://oncampus.osu.edu/parking-lease-leads-to-scholarship-dollars-research/.

The new scholarships are intended to serve as an incentive for students from any discipline to carry out a research or creative activities project with a faculty mentor, independent of the new Second-Year Transformational Experience Program. Our goal is to generate an interest and awareness of research opportunities, reduce barriers for students who would not otherwise explore these options, track their progress, and guide them toward meaningful professional experiences in preparation for future careers.

Two types of funding awards are now available:

1) **Research Scholar Awards** are funding awards of $1,000. These awards focus on students who are just getting started with an independent faculty-supervised research or creative activity and other students who have been not been funded previously. Each Scholar is encouraged to present his or her work at an OSU undergraduate research forum or creative arts event. We expect to fund up to 300 Undergraduate Research Scholars per year. During May-December 2014, we funded 98 Undergraduate Research Scholars.

2) **Undergraduate Education (UE) Summer Research Fellowships** are stipends of $3,500 to support full-time, faculty-mentored summer research projects. In 2014, these fellowships were offered to students who submitted competitive proposals for summer funding through the URO and had not received other summer funding awards. In Summer 2014, the newly available funds were used to support 89 UE Fellows,
for a total of $294,500. This amount is likely to fluctuate in the future, depending on incoming revenue and the numbers of Research Scholar Awards.

**CAMPUS CAMPAIGN FUNDS**

*The Office of Undergraduate Research Fund (Fund 312045—current total of $8,297)*

Proceeds from this fund support one of the URO Summer Research Fellows each year. University employees can request tax-deductible monthly paycheck contributions be made to the URO Research Fund via the Campus Campaign for giving (campuscampaign.osu.edu). One-time contributions can also be made directly at http://go.osu.edu/urodonate.

**DEVELOPMENT FUNDS—ENDOWED FUNDS**

1) *Karen A. Holbrook Fund (Fund 663339—principal balance of $206,817)*

This endowment was established to honor Ohio State past-president Karen A. Holbrook. The funds are used to support research through the Undergraduate Research Office and the Study Abroad Scholarships through the Office of International Affairs (OIA). Contributions can be made to this fund via: http://go.osu.edu/holbrookfund.

The current earnings from this endowment are sufficient to support 1–2 summer research fellows each summer for $3,500 each. URO and OIA collaborate to fund students who are conducting research projects abroad each summer. In 2014, 2 awards were given.

2) *SOLAR Foundation Research Fund (Fund 666787—principal balance of $76,050)*

The SOLAR Foundation Research Fund was established in 2009 by the Ohio State Board of Trustees with gifts from Dr. Emil Bisaccia (B.S. 1974 Biology) of the SOLAR Foundation of Morristown, New Jersey. This endowed fund is used to support undergraduate students pursuing research in the fields of epidemiology, virology, HIV and AIDS education, other infections of the blood, and related subjects, and is administered by the Undergraduate Research Office.

In 2014, 13 awards of $500 or $800 were distributed. Funds from the Dave V. Perry and Isabel H. Perry Research Scholarship Fund (Fund 291430) were used to supplement the SOLAR Fund and support more student projects.

**CONFERENCE TRAVEL AWARDS**

Beginning in Spring 2014, the URO started offering a limited number of small grants to undergraduate researchers who are traveling to professional conferences to present research. Awards of up to $500 are given to students as reimbursement for travel costs, such as airfare, hotel costs, and conference registration fees. As of December 2014, 13 travel awards have been granted, for a total of $6,075.

**URO SUMMER RESEARCH FELLOWSHIPS**

The URO provides fellowships for undergraduate students who pursue full-time research during Summer Term under the supervision of an Ohio State faculty member. Each fellow receives a $3,500 stipend for 10 weeks of research and participates in the URO’s Summer Undergraduate Research Institute. The fellows present their findings at the annual Fall Undergraduate Research Student Poster Forum. In 2014, 25 students received fellowships, including 13 funded by the URO, 2 students supported through

---

10 students were awarded summer research funding from an additional OSU program. These students were allowed to accept both awards, but the UE Fellowship award was reduced to either $2,500 or $1,750 so these students did not receive more than $3,500 total for the summer.

2In 2014, this fund was not used. Two URO Summer Fellows received reduced awards of $1,750, and the additional funds were not needed.
the Holbrook Fund for International Research, 2 funded by the Department of Evolution, Ecology, and Organismal Biology, 1 by the Department of Economics, and 7 by the Department of Psychology.

We thank the Office of Undergraduate Education, the Office of Research, the Department of Psychology, the Department of Economics, the Department of Evolution, Ecology, and Organismal Biology, and donors to the Karen A. Holbrook Fund and URO’s Campus Campaign Fund for supporting this program.

**Comments from 2014 Fellows**
The responses from our 2014 Fellows, like those from previous years, have been overwhelmingly positive. This year’s fellows commented that they had expanded both their understanding of the research process and their own research skills. Fellows also mentioned the impact that the fellowship had on their future plans; several fellows published or attended conferences related to their summer research, and as often communicated by previous fellows, learned much about overcoming the unexpected.

**Changing perspectives and skill development:**
“*My advisors helped me understand the journal articles and recommended two textbooks to me. These helped tremendously in acquiring the fundamental knowledge in the field of labor economics.*”  
Akina Ikudo, Economics

“*Being provided with the opportunity to practice important techniques has allowed me to become more hands on during the procedures that actually matter [for data collection].*”  
Samantha Parsons, Animal Science

“*Throughout the course of the summer, in addition to learning much more about the science involved in my specific project, I learned a great deal about the scientific process and what being a scientist actually entails.*”  
Sonia Tandon, Biomedical Science

“*I am learning things about statistics that I doubt I could have learned in any introductory course at Ohio State. Learning how to do something through the very act of doing it is very different than reading about it in a textbook, and this summer provided me with that opportunity.*”  
Gwendolyn Donley, Anthropological Sciences and Italian

“*I came across more and more interesting information that I wanted to include, and I also discovered that my own ideas of what I wanted to accomplish in my project had changed and grown more specific.*”  
Kyle Schofield, Psychology and Sexuality Studies

“*It has been interesting for me to see how my professor works with the graduate students to research and pilot new ideas...Since I had not been able to see this side of research previously, it was a great experience for me to get an idea of how a large research project begins.*”  
Nicole Macllavane, Psychology
“Over the summer, our lab met regularly to discuss relevant research articles and this has given me the opportunity to not only read additional articles, but to also listen to how more experienced researchers read them and what they are able to get from them. Meeting in this manner had been valuable to my own development in becoming a researcher.”
Brian Upton, Neuroscience

“As an undergraduate research assistant during the academic year, I never had the time or opportunity to immerse myself fully in one study. Working such limited hours during the school semesters prevented me from grasping the amount of work and planning that comprised a large-scale study. During the summer, however, I executed all three major components of my research project.”
Paige Trojanowski, Neuroscience

**Impact on future:**
“Spending hours in the lab, making it my 9 to 5 job, has given me perspective not only on my project, but also what my future life goals may be. “
Jessie Sun, Psychology

“I understand why our techniques work, and if something goes wrong I can modify and fix it. More than just learning how to do something, I learned why. I learned that graduate school is really where I belong after graduation, because I spent this summer working as a graduate student.”
Alexis Crockett, Neuroscience & Psychology

“I love research... I know that I wish to pursue research whether it be in engineering designing new systems or if it will be in physics, such as what I am currently working on: designing equipment for use on experiments on particle accelerators.”
Joseph Warner, Electrical and Computer Engineering

**Self-Discovery:**
“This summer I’ve experienced incredible confusion and frustration, but also a great sense of empowerment and fulfillment.”
Daniel Petrick, Political Science (Holbrook)

“... I had to learn to be more self-directed and self-disciplined.”
Jelena Majstorovic, Psychology

“... research opens up new avenues for which to take our questions and where we can find answers.”
Joseph Ross, History

“I learned that independent, library-based research poses a number of cognitive challenges, given the repetitive and mentally taxing nature of library research. Though the material was and still remains fascinating to me, it is difficult to read along for eight or so hours a day.”
Rashmi Borah, Philosophy and Microbiology
Publishing and Presenting:
"...I began to include excerpts from my fieldnotes on my blog along with personal observation and notes about my other activities [and my advisor] posted a link to it on the OSU anthropology website! Even though it meant I had even more writing to do on top of fieldnotes, applications, etc., it is always a rewarding experience to bring my research to other people and teach them about a different culture."
Emily Schueller, Anthropological Sciences (Holbrook)

“I have applied to present my work at a national recognized social psychology conference, the annual meeting of the Society for Personality and Social Psychology.”
Will Schiavone, Psychology

“Another experience I had that I picked up over the summer was from going to a research symposium with the other members of my lab... it was interesting to see how primary investigators learn from one another and ask important questions about the research of others. I think that the most important thing that I picked up from the symposium is how to answer difficult questions when discussing your research. I learned that being open about what I understood and what I didn’t was very important to effectively communicate with others.”
Benjamin Albert, Biomedical Engineering

Learning from the Unexpected:
“The first thing I learned in the lab this summer is that nothing goes as planned.”
Alexis Crockett, Neuroscience & Psychology

“Although equipment breakdowns are never a good thing, they certainly allow the students in the group to gain a better understanding of how the tools we use actually function.”
Alexander Jarjour, Engineering Physics
Publicity and Marketing

GOALS
Publicity about undergraduate research—its availability, scope and benefits—and marketing events are extremely important to the success of the office. While our primary audience is undergraduate students, we must also reach faculty, staff, and even those outside of Ohio State. To accomplish this essential task, we use a variety of digital and print, passive and active methods of communication. We constantly seek new strategies for making our services available to a larger portion of the Ohio State community, including regional campuses. Our main venues for publicity and marketing are described below.

DIGITAL COMMUNICATION

URO website: http://undergraduateresearch.osu.edu
The URO website serves as a centralized, comprehensive site for students to learn about undergraduate research in general and more specifically about opportunities for Ohio State students. Our website received more than 76,000 visits in 2014 (7.5% more than in 2013), and more than 56,000 unique visits (10.7% more than 2013). We also maintain and update the website for the Denman Undergraduate Research Forum, www.denman.osu.edu.

The URO website is updated frequently to provide students at all stages of research involvement with news, resources, and information. Information on the website covers introductory topics, such as what research is and how to find research opportunities at Ohio State. Other sections explore how a student would produce a research poster, write a research proposal, and complete a research thesis. Our website helps connects the campus with our Peer Research Contacts (the student-to-student advising list) and the online form to help faculty members recruit student researchers. Other pages serve to publicize the accomplishments of student researchers, and links to facilitate donations and to JUROS, the Journal of Undergraduate Research at Ohio State.

Improvements to the website are an ongoing effort. In 2014, a faculty section was added and many of the student pages were rewritten or revised. Pages for new office initiatives such as Research Scholar Awards and PURE, the Portfolio of Undergraduate Research Experiences, were also added. Staff are working on a major update and reorganization of the website in the near future to improve its utility and function, and to give it a more current look.

Undergraduate Research Office Email List
More than 9,600 students, faculty, and staff have joined this list to receive our weekly E-News, announcements about URO programs, research-related events, and research opportunities. This represents a 17% increase over 2013, and reflects a growing awareness of and interest in undergraduate research at Ohio State. Students can sign up at outreach events such as the Student Involvement Fair and URO-sponsored programs, or through our website. An “unsubscribe” option is offered with each outgoing message.

Email is our primary method for recruiting students to our events. As part of our evaluation of URO events, we ask attendees where they heard about the event; data from the past year showed that once again the majority, 64%, learned about the event through email (Table 9; pooled data from 753 student replies). There was a leap from 3% to 10% of students who learned about URO events through their advisor and/or a faculty member; this jump was in large part due to faculty participating in the Second-Year Transformational Experience Program (STEP) who encouraged sophomore students to attend more URO events, especially Information Sessions.
Targeted Emails
We use the university’s emailer system provided by the Office of the Chief Information Officer to send emails to students based on major, class rank, Honors & Scholars affiliation, etc. This system allows us to inform targeted subsets of the student population about specific research opportunities, including voluntary and paid research experiences with Ohio State faculty. In 2014, we received 99 faculty requests for assistance in finding student researchers. Many of those were repeat users of this method for recruiting undergraduate student researchers, and feedback from faculty who use this service continues to be extremely positive.

“Thank you for sending out the research announcement. The response has been phenomenal. Your office sure represents a lot of impressive undergraduate students interested in research.”

“You have helped me to find a great undergraduate student a couple of months ago, and I am now ready to get one or two more in the lab for the summer and beyond.”

“We received two very strong applications. Today, we interviewed both students and chose one. Finding a student to work on the project and thus getting the research project rolling would not have been possible without your help and that of your office.”

Social Media
Social media complement and reinforce email and web communications offered by the URO, and provide a preferred option for some students. Social media usage increases URO visibility at Ohio State and elsewhere. It is an expected feature of any academic office in today’s digitally connected university environment. The URO relies on Facebook and Twitter for its social media connection.

We use the URO Facebook page to post updates about research news and events at OSU and to share photos. We also featured daily posts during January 2014 about different summer programs (either at OSU, national, or international) to support our “Summer in January” theme and to promote applications for summer research. During the summer, in-depth blog posts were posted online and links were included in the weekly SURI e-mails.

Our Facebook page has seen a 22% increase in followers in 2014. However, it appears that Facebook recently changed their policy and separated the feed for Pages from the regular newsfeed, reducing the reach of our Facebook page significantly.

Twitter has been used by our office to a greater extent in 2014 with much success. The URO twitter page

Table 9. Sources of information for event attendance

<table>
<thead>
<tr>
<th>Source</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-mail</td>
<td>69%</td>
<td>69%</td>
<td>69%</td>
<td>64%</td>
</tr>
<tr>
<td>Handout</td>
<td>5</td>
<td>6</td>
<td>8</td>
<td>11</td>
</tr>
<tr>
<td>Website</td>
<td>12</td>
<td>11</td>
<td>11</td>
<td>6</td>
</tr>
<tr>
<td>Friend</td>
<td>6</td>
<td>5.5</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Advisor</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>11</td>
</tr>
</tbody>
</table>
(@OSU_URO) is being used to connect with other campus offices and undergraduate student groups. We announce events, upcoming deadlines, and “retweet” research news and events across campus. The number of our twitter followers increases each month and we currently have 464 followers.

**Early Semester Updates to the Faculty**
At the start of each semester, the URO Director sends an email to all Ohio State faculty, via their deans and department chairs, listing recent developments and programs that will be offered by the URO. This allows faculty to inform students in their courses about pertinent application deadlines, information sessions, and resources on the URO website.

**Academic Advising Association of Ohio State (ACADAOS)**
This professional development group for advisors has a listserv that we utilize. Event evaluations showed that 10% of students reported that they heard about the particular event they attended through their academic advisors and/or faculty members. URO emails are forwarded to every academic advisor on campus, whether a member of ACADAOS or not, by the Office of Undergraduate Education.

**Honors & Scholars Weekly and Undergraduate E-Newsletter from Arts & Sciences**
We post events and opportunities to reach all enrolled Honors & Scholars and Arts & Sciences students on a regular basis.

**Office of Diversity and Inclusion**
We forward all announcements to underrepresented students on campus through the Office of Diversity and Inclusion.

**OnCampus Weekly (formerly Buckeye Net News)**
This weekly newsletter goes out to the entire Ohio State undergraduate student population. We use it weekly to advertise URO events and to submit other important announcements.

**OnCampus Today (formerly OSU Today)**
When appropriate, we announce events and application deadlines to Ohio State faculty and staff through the university’s daily email newsletter.

**University Communications Features**
We work with University Communications to publish occasional features on undergraduate research which are published in digital and print media for the entire Ohio State community and beyond through the university’s main website (www.osu.edu) and the onCampus Today newspaper and website. For example, we have worked with staff from the University Communications on stories featuring student research projects from the Denman Forum, with links to the URO website. Undergraduate researchers are often featured in stories about summer experiences and outstanding graduating seniors.

**Digital Bulletin Boards**
We take advantage of digital bulletin boards at the Ohio Union and the University Libraries to advertise services and events. The bulletin boards display images for about 20 seconds each, allowing us to email virtual posters to these sites instead of printing and hanging them, saving printing and labor costs.

**PRINTED MATERIALS**
**Flyers**
We post event schedules and flyers for special events all over campus at least once each semester.
**URO Brochure**

“Undergraduate Research at The Ohio State” is a brochure we use with audiences on and off campus to advertise our office and undergraduate research engagement at the university.

**Highlights of Undergraduate Research at Ohio State**

Each year we publish a booklet of nontechnical research summaries featuring the work of 16–20 students selected from those who presented their research at the most recent Denman Undergraduate Research Forum. This popular booklet serves as a general introduction to the exciting work that our undergraduate researchers are conducting. The booklet is distributed to academic leaders and advisors at Ohio State, is given out to students as appropriate, and is posted to our website.

**Info Cards**

We created two new info cards for ongoing distribution around campus to advertise new office initiatives: PURE, the Portfolio of Undergraduate Research Experiences and Research Scholar Awards. Info cards are small, attractive publicity pieces that can be used year round.

**Postcards for Incoming Freshmen**

For the first time, we prepared and sent a postcard promoting undergraduate research involvement at Ohio State to all incoming students. The postcards were sent in mid-August before the beginning of fall semester to the students’ homes, with the goal of alerting parents as well as students of the resources available to students interested in undergraduate research.

**Journal of Undergraduate Research at Ohio State (JUROS)**

*JUROS* is a student-run organization advised by the URO. See page 30 for a full description of *JUROS*’ activities in 2014.

**Denman Forum Flyers and Advertisements**

URO manages the printing and posting of Denman Forum flyers and advertisements in campus buildings, on CABS buses, in the onCampus Newspaper, and on digital bulletin boards.

**OnCampus Newspaper**

We announce the Distinguished Undergraduate Research Mentor and Outstanding Research Mentor awards in an annual spring advertisement in onCampus. The URO also lists information about the office in the annual OnCampus departmental guide.

**Promotional Items**

Green pens are a hallmark promotional item from the URO, helping the office to establish a readily identifiable presence on campus and ensuring students know how to contact the office or access the website. In 2014, the URO purchased a higher quality pen for distribution to faculty and others who assist at URO functions. Also, in 2014, the URO purchased t-shirts for its student volunteers to wear at large public events so that they would be more easily identified; these shirts serve as walking billboards when worn around campus.

**Denman Research Forum and Fall Undergraduate Research Forum Programs**

Poster titles and authors are printed in an attractive booklet that is distributed at each forum and posted on the URO website.
National Conferences and Publications (2008-2014)

PRESENTATIONS


PUBLICATIONS


The Journal of Undergraduate Research at The Ohio State University (JUROS)

juros.osu.edu

2014-2015 Editor-in-Chief | Christopher Fortuna
2013-2014 Editors-in-Chief | B. Rashmi Borah and Kara Mattioli

Faculty Editorial Board

<table>
<thead>
<tr>
<th>Allison Snow</th>
<th>Evolution, Ecology, and Organismal Biology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Robert Cook</td>
<td>Anthropology (OSU Newark)</td>
</tr>
<tr>
<td>Lane Wallace</td>
<td>Pharmacy</td>
</tr>
<tr>
<td>Dawn Delfin</td>
<td>Biomedical Sciences</td>
</tr>
<tr>
<td>Ozeas Costa</td>
<td>Earth Sciences (OSU Mansfield)</td>
</tr>
</tbody>
</table>

ABOUT JUROS

JUROS is the student-run Journal of Undergraduate Research at Ohio State that is open to publication from OSU undergraduate students in all academic disciplines. JUROS has both an online journal and a printed journal of selected papers from the online journal. The JUROS website and submission system is hosted through University Library’s Knowledge Bank (http://juros.osu.edu/).

2014 UPDATE

JUROS Volume 4 (2013-2014 academic year) includes 9 full-length manuscripts—6 in Science and Technology and 3 in Arts and Humanities (http://juros.osu.edu/issue/view/115). JUROS Volume 4 is an online publication and will not appear in print. Submissions for JUROS Volume 5 (2014-2015 academic year) were opened in Autumn 2014. To date, 6 submissions have been received and are under review.

In Autumn Semester 2014, a new student editor-in-chief of JUROS was chosen. Christopher Fortuna, a senior in Exercise Science Education and experienced undergraduate researcher, will lead JUROS for the 2014-2015 academic year. Christopher is actively recruiting new student staff members and reviewing submissions to JUROS.

CHANGES IN 2014

In Summer 2014, the URO took a more active role in overseeing JUROS operations, at the request of the journal’s out-going student editors. Jackie Lipphardt, Program Coordinator at the URO, will now assist the editor-in-chief with publishing JUROS submissions online and in print. She is also responsible for meeting with the editor-in-chief on a regular basis and will be assisting in training new editorial staff members. Also in 2014, the position of editor-in-chief became a paid position, to ensure that the person in this position will have adequate time to facilitate the continuous running of JUROS.

ACKNOWLEDGEMENTS

A special thanks from the JUROS Editorial Board and the URO goes to all undergraduate authors, the student staff members of JUROS, the advisors who have guided the research, Melanie Schlosser at the University Libraries, and our audience of faculty, staff, and students at Ohio State.
Appendix A:
Strategic Plan for the Undergraduate Research Office,
2012-2017

Note: Having largely met the goals of our previous Strategic Plan, we developed this plan for 2012-2017 in alignment with the overall Strategic Plan of the Office of Undergraduate Education.

ABOUT THE URO

Strategic Vision
We seek to integrate the dual missions of research and teaching at The Ohio State University, to enrich the undergraduate experience, and to become known as a national leader of campus-wide undergraduate research programs.

Strategic Mission
The Undergraduate Research Office coordinates opportunities for undergraduate students to engage in meaningful research at The Ohio State University, a top public research university. The URO promotes many types of research-related activities and events for students in all academic disciplines.

Shared Values
As a unit of the Office of Undergraduate Education, we are committed to the core values of excellence and innovation, collaboration, community service, teamwork, inclusion and respect for diversity, integrity and personal accountability, openness, and trust.

STRATEGIC SCAN

The External Environment
During the past decade, large research universities have joined the ranks of primarily undergraduate institutions in an effort to provide research experiences as an important component of academic enrichment and career development. Many studies have shown that students who are involved in research are more likely to complete their degrees, achieve greater academic progress, and pursue postgraduate training. Undergraduate research experience is now expected of applicants to many graduate and professional programs. OSU seeks to maintain and enhance our national profile by continuing to make undergraduate research part of our academic culture.

The Internal Environment
The Undergraduate Research Office serves undergraduates at the Columbus campus and at our regional campuses. With a staff of 3.75 regular employees (director, assistant director, program coordinator, and program assistant), we are a small office with a broad service mission. Our current staff is working at full capacity even as demand for our services is growing. Recently, each class of incoming freshmen has been better prepared and has higher expectations than the previous one. Also, the new STEP initiative (Second-Year Transformational Experience Program) will encourage more sophomores and juniors to get involved in research than in the past. In addition, starting in 2013, our office assumed responsibility for the annual Denman Undergraduate Research Forum, now in its 20th year. Given these increasing demands, we seek to be as efficient as possible in providing resources and programs for students.
Our highest priorities are to:
• Introduce students to rewarding research experiences with effective programs and individual coaching.
• Help students find faculty mentors and funding, and help faculty find student collaborators.
• Help students present their findings at local and national symposia.
• Support the Denman Undergraduate Research Forum and other forums at OSU.
• Coordinate the Summer Undergraduate Research Institute at OSU.
• Promote recognition of student research accomplishments on campus and beyond.
• Assist OSU colleges, schools, departments, and other offices with promoting undergraduate research opportunities and participation.
• Help forge new connections between teaching and research at OSU.

Areas Needing Improvement

1. Teaching and Learning
   • Improve current efforts to promote undergraduate research as a major component of academic enrichment and “high impact” education at OSU.
   • Contribute to STEP by informing students and faculty about undergraduate research opportunities, if current staffing levels permit.

2. Research and Innovation
   • Facilitate increased student participation in undergraduate research, despite constant or decreased funding in some areas.
   • Develop a campus-wide plan in which the annual Denman Undergraduate Research Forum is sustained as the premier celebration of undergraduate research, while other forums are established to meet increasing needs of undergraduate researchers in all academic disciplines.

3. Outreach and Engagement
   • Continue to increase student, faculty, and staff awareness of undergraduate research.
   • Continue to enhance OSU’s local and national reputation as a leader in undergraduate research.

4. Resources Stewardship
   • People: maintain sufficient staffing for increasing demands, while assisting our current staff with time management and professional development.
   • Continue to improve collaborations with other offices.
   • Continue to improve efficiency by developing a database system for tracking student success and expediting applications, data storage, and portions of our annual report.
   • Improve funding by seeking external and internal funding for unmet needs of our students, such as:
     • Sustained viability of the Denman Undergraduate Research Forum.
     • Other undergraduate research forums.
     • Summer research fellowships.
     • Travel to professional meetings.

Succeeding in Our Strategic Focus Areas

1. Teaching and Learning
   • Promote undergraduate research as a major component of academic enrichment and “high impact” education.
• Maintain and enhance excellent programs and workshops to teach underclassmen about undergraduate research opportunities and continue to assess the effectiveness of these services using student evaluations.
• Improve communications with faculty and students at OSU’s regional campuses.
• Reach out to students in underrepresented groups, in collaboration with other offices and programs.

2. Research and Innovation
• Enhance student participation in undergraduate research.
  • Provide additional small grants and fellowships to support undergraduate researchers, while encouraging similar efforts by colleges and departments.
  • Encourage more students to present their work at forums and other opportunities for demonstration and celebration of students’ achievement in scholarly research, team-based projects, and artistic exhibition and performance.
  • Encourage more students to complete a thesis and graduate with “Research Distinction.”
  • Encourage more faculty to recruit undergraduate researchers through our office and independently.

3. Outreach and Engagement
• Increase student, faculty, and staff awareness of undergraduate research.
  • Continue to produce and improve marketing and public relations materials, especially those that can be distributed electronically, to reach ever larger audiences.
  • Continue to work with University Communications and other offices to publicize achievements of undergraduate researchers.
  • Continue to enhance OSU’s national reputation as a leader in undergraduate research.
    • Remain active in the National Council for Undergraduate Research to enhance national recognition and contribute to national initiatives for undergraduate research.

4. Resources Stewardship
• People:
  • Maintain and enhance staff performance, professional development, and diversity.
  • Obtain an additional staff position to meet increasing needs of students seeking undergraduate research experiences.
  • Continue to recruit large numbers of undergraduates to help with URO’s mission as volunteers and employees.
  • Maintain and enhance collaborations with other OSU offices, including the Honors and Scholars Center and University Libraries.
  • Develop a database system for tracking student success and expediting applications, data storage, and portions of our annual report.
  • Seek external and internal funding for unmet needs of our students, such as:
    • Sustained viability of the Denman Undergraduate Research Forum.
    • Other undergraduate research forums.
    • Summer research fellowships.
    • Travel to professional meetings.
Metrics for Tracking Our Performance

1. Teaching and Learning
   - Number of workshops and events to teach underclassmen about undergraduate research opportunities, including students in STEP and those in programs for underrepresented groups.
     - Also, the numbers of students attending these events.
     - Add content to the URO website that is specific to students at regional campuses.

2. Research and Innovation
   - Enhancing student participation in undergraduate research:
     - Numbers of small grants and fellowships to support undergraduate researchers.
     - Numbers of students who present their work at forums and other venues that showcase students’ achievement in scholarly research, team-based projects, and artistic exhibition and performance. (Note that quantifying students’ artistic accomplishments outside of regular coursework is complex and our metrics are not exhaustive.)
     - Numbers of students who complete a thesis and graduate with “Research Distinction.”
     - Numbers of faculty who recruit undergraduate researchers through our office.

3. Outreach and Engagement
   - Numbers of visitors to the URO website and Facebook page.
   - Publication of our annual booklet, *Highlights of Undergraduate Research*.
   - Examples of news stories for the OSU community, including alumni, featuring undergraduate researchers.
   - Presentations at biannual meetings of the National Council for Undergraduate Research and other organizations.

4. Resources Stewardship
   - People:
     - Retention of current staffing level; excellent annual performance reviews of our current staff.
     - Addition of a new staff position in 2014 allows us to meet increasing demands related to the Denman Undergraduate Research Forum, STEP, small grants from OSU parking lease funds allocated to the URO, and other services listed above.
     - Numbers of undergraduates who assist the URO as employees or volunteers, including students who volunteer as peer research contacts.
   - Numbers of programs offered in collaboration with other OSU offices.
   - Development of a database system for tracking student success and expediting applications, data storage, and components of our annual report.
   - Additional external and internal funding for unmet needs of our students, such as:
     - Sustained viability of the Denman Undergraduate Research Forum.
     - Other undergraduate research forums at OSU.
     - Summer research fellowships.
     - Travel to present student work at professional meetings.
Appendix B: Undergraduate Research Offices at Benchmark and CIC Universities

Most large public research-intensive universities encourage participation in undergraduate research through an office, a website, a symposium or forum, or specific, funded programs. Many universities utilize more than one of these options. In this section, we compare programs among our benchmark and fellow CIC universities.

The trend toward having a central office that serves as an informational clearinghouse for the entire student population, the model adopted at Ohio State in 2006, is becoming more common nationally. A comparison of programs at our benchmarks and the CIC universities shows that 13 of 18 have a central, university-wide office, and all but one have a university-wide forum or symposium to celebrate and showcase undergraduate research accomplishments (Table B1). It is clear to us that offering a university-wide forum for undergraduate research is essential to maintaining our standing as a leading research institution.

BENCHMARK UNIVERSITIES
1. Pennsylvania State University
http://undergradresearch.psu.edu/
Penn State has a website and an undergraduate research forum. On their website, they advertise summer grants, conference travel grants, and the forum. The website also includes a database of faculty postings for undergraduate research opportunities which can be sorted by college or faculty.

2. The University of Arizona
http://ur.arizona.edu
The University of Arizona has 23 undergraduate research programs through the College of Science. They have a searchable database of faculty. The university has research poster sessions in various STEM disciplines, including the Undergraduate Biology Research Program and the NASA Space Grant Internship program, which have been in existence for 20 years. They also have awards, including Outstanding Seniors, Galileo Scholars, and Excellence in Undergraduate Research.

3. The University of California at Los Angeles
www.ugeducation.ucla.edu/ugresearch/;www.gdnet.ucla.edu/asis/srp/srpinfo.htm
UCLA has Research Centers for undergraduate research in Life & Physical Sciences and in Humanities & Social Sciences. Research Center websites include lists of fellowship and scholarship opportunities, student profiles, and announcements about workshops for getting started in research. UCLA also has a forum for students in Physical and Life Sciences and the UCLA Undergraduate Science Journal. Undergraduate Research Week, which highlights undergraduate research in the humanities, arts, and social sciences, is held in the spring.

4. The University of Florida
http://www.honors.ufl.edu/research.aspx;
http://www.clas.ufl.edu/jur/
The University of Florida offers a database of all research opportunities by field and programs for 1st and 2nd year students to begin research. Undergraduate research is coordinated through the Honors Program, where students can receive credit and financial aid for research. Florida also has a University Scholars Program for non-Honors students. Students can publish in a campus-wide Journal of Undergraduate
Research.

5. The University of Illinois at Urbana-Champaign  
http://provost.illinois.edu/our/index.html
The University of Illinois at Urbana-Champaign’s Office of Undergraduate Research, founded in 2012, was joined by the Ethnography of the University Initiative and has increased their staff this year. IU offers a travel award for current undergraduates to present his/her research poster and sponsors an annual research symposium for undergraduates. Also new in 2014, the school awarded Undergraduate Research Certificates to recognize student achievement in undergraduate research and sponsored a Summer Undergraduate Research Fellowship program for undergraduate students at UI.

6. The University of Maryland  
http://ugresearch.umd.edu
The University of Maryland has an office devoted to undergraduate research which offers seminars about applying to the NSF Graduate Research Fellowship, applying to graduate school, presenting at conferences, etc., with an online database listing research opportunities. The Maryland Summer Scholars program offers summer research funding. Maryland has an annual Undergraduate Research Day for presenting research.

7. The University of Michigan  
http://www.lsa.umich.edu/urop/
The Undergraduate Research Opportunity Program at The University of Michigan is a highly effective, nationally known program for 1st and 2nd year students. UROP connects students and mentors and provides supplementary research funding and skill building workshops. There is a large, multi-session spring symposium to showcase student research accomplishments and several externally-funded summer programs.

8. The University of Minnesota  
http://www.research.umn.edu/undergraduate/
The University of Minnesota has a central office that is open to all undergraduates. Undergraduate Research Scholarships are granted through the admissions office, and current undergraduates may apply and be funded to do research through the Undergraduate Research Opportunities Program. There are campus-wide symposiums in the spring and summer.

9. The University of Washington  
http://Washington.edu/research/urp/
The University of Washington has an Undergraduate Research Program with a campus-wide office that helps students find research opportunities and sponsors an annual symposium. The core program is centrally funded and collaborates closely with a large endowment that provides competitive scholarships; external and gift funds provide support for special programs including summer research. Their website includes a database of research opportunities, including programs for paid research experiences.

10. The University of Wisconsin-Madison  
http://www.provost.wisc.edu/undergradresearch.htm
The University of Wisconsin-Madison supports an Undergraduate Research Scholars Program open to 1st and 2nd year students. There are numerous other content or discipline specific undergraduate research opportunities offered including a McNair Scholars Program and the Wisconsin Idea Fellowship. The university sponsors an Undergraduate Symposium for students in all disciplines, with several hundred participants.
CIC INSTITUTIONS

11. Indiana University
http://college.indiana.edu/undergradscienceresearch/
http://scholarships.indiana.edu/scholarships/cox/Research.php

Indiana University has the Cox Research Scholars Program which selects up to 40 incoming freshmen each year. Recipients of this scholarship commit to year-long research or creative project, renewable for up to four years. The scholarship has a total value of more than $60,000 over four years. Other undergraduate research initiatives include the McNair Program for underrepresented groups, the Science Technology and Research Scholars Program, and the Intensive Freshman Learning Experience, which involves six weeks of laboratory research during the summer between high school and college, accelerated freshman science courses, and a $1,000 scholarship. Indiana also has a state-wide undergraduate research conference.

12. Michigan State University
http://urca.msu.edu/

Michigan State University’s organization is similar to that of Ohio State, with a central office, personnel, a website, a large annual forum, and a university-wide approach. Most funding for student researchers is distributed by other units on campus, and small, discipline-specific programs are offered by various colleges and departments. Michigan State University also has a database of research, scholarship, and creative opportunities for undergraduates named Venture.

13. Northwestern University
http://undergradresearch.northwestern.edu/

The Office of Undergraduate Research at Northwestern University is also very similar to that of Ohio State. There is a central office which has a website and provides student advising, information sessions and events, grants such as the Summer Undergraduate Research Grant, and an annual Undergraduate Research & Arts Exposition. Northwestern University also hosts a Global and Research Opportunities database for students to search for open research positions.

14. Purdue University
http://www.admissions.purdue.edu/academics/research.php

Purdue does not appear to have campus-wide research programs for undergraduates. Individual departments have websites for undergraduate research. The University also has a program called Discovery Undergraduate Research Internship, where students can apply for part-time internships during the academic year and full-time internships during the summer to conduct research in any STEM field. Purdue also runs The Journal of Purdue Undergraduate Research.

15. Rutgers University
https://aresty.rutgers.edu/
http://www.rutgers.edu/research/undergraduate-research

Rutgers-New Brunswick utilizes the Aresty Research Center, founded in 2004 through a private donation, and offers Aresty-Byrne seminars to all first-year students. These seminar courses are taught by faculty in order to teach student introductory research skills so the students can establish a skill base for future research involvement. Rutgers puts on the annual university-wide Undergraduate Research Symposium as well as provides funding such as the Aresty Undergraduate Research Fellowships and travel grants for students in all disciplines.
16. University of Chicago
http://www.uchicago.edu/research/student_research/;
http://frogs.uchicago.edu/
University of Chicago has a centralized website for Fellowships, Research Opportunities, Grants and Scholarships (FROGS) which lists a database for research opportunities as well as some advice in getting started. Most information about research involvement as well as summer research programs are listed in individual departments’ websites.

17. University of Iowa
http://icru67wix.com/uiowa-icru
The Iowa Center for Research by Undergraduates at the University of Iowa promotes undergraduate involvement in mentored research and creative projects across all disciplines of study. Their new website, created in 2013, offers information on programs to support undergraduate research including funding and presentation opportunities. There are numerous research conferences and symposiums for undergraduate research each year.

18. University of Nebraska
http://www.unl.edu/ucare/
The University of Nebraska has summer research programs in various disciplines and sponsors an annual research fair. The University also has the Undergraduate Creative Activities and Research Experiences Program, a two-year program for students in any field. Students are funded and receive course credit to assist in a mentor’s project during their first year and conduct their own project in the second year. Students are required to present their work at the end of the second year.
Table B1. Comparison of undergraduate research offices at Benchmark and CIC Universities

<table>
<thead>
<tr>
<th>Institution</th>
<th>Central undergraduate research office</th>
<th>University-wide forum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indiana University—Bloomington</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Michigan State University</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Northwestern University</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Ohio State University</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Pennsylvania State University¹</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Purdue University</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Rutgers University</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>University of Arizona¹</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>University of California, Los Angeles¹</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>University of Chicago</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>University of Florida¹</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>University of Illinois, Urbana-Champaign¹</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>University of Iowa¹</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>University of Maryland¹</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>University of Michigan¹</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>University of Minnesota¹</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>University of Nebraska</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>University of Washington¹</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>University of Wisconsin—Madison¹</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Total Yes | 13 | 17

¹. Ohio State’s benchmark universities as designated by the Office of Academic Affairs
Appendix C:
2014 Recipients of Funding Awards

URO Summer Research Fellows

Benjamin Albert
Major: Biomedical Engineering
Project Title: *Effect of Collagen Fiber Structure on Cell-Matrix Interactions*
Advisor: Gunjan Agarwal (Biomedical Engineering)

Bornali (Rashmi) Borah
Major: Philosophy and Microbiology
Project Title: *Prophylactic Organ Removal as a Means of Cancer Prevention: A Programmatic Analysis of Relevant Ethical Considerations*
Advisor: Mariko Nakano (College of Medicine)

Jane Corwin
Major: Biochemistry and French
Project Title: *Identifying Factors Responsible for Incomplete N-terminal Deformylation in Anti-TRAP*
Advisor: Mark Foster (Chemistry and Biochemistry)

James (Riley) DeBacker
Major: Speech and Hearing Science
Project Title: *Long Term Effects of the Synergistic Interaction of Cisplatin and Noise*
Advisor: Eric Bielefeld (Speech and Hearing)

Gwendolyn Donley
Major: Anthropological Sciences and Italian
Project Title: *Allostatic Load Varies by Apolipoprotein E and ACE Genotypes in American Samoans*
Advisor: Douglas E. Crews (Anthropology)
URO Summer Research Fellows, continued

Andrew Goldschmidt
Major: Mathematics and Physics
Project Title: Initial Conditions for High-Energy Collisions between Deformed Nuclei
Advisor: Ulrich Heinz (Physics)

Alexander Jarjour
Major: Engineering Physics
Project Title: Single Point Defects in ZnO Nanorod Structures
Advisor: Leonard Brillson (Electrical and Computer Engineering)

Samantha Parsons
Major: Animal Science
Project Title: Cognitive Impairments within an Animal Model of Schizophrenia as a Result of Elevated Levels of Kynurenic Acid
Advisor: John Bruno (Psychology)

Joseph Ross
Major: History
Project Title: Mr. Jefferson’s Sickle: Thomas Worthington and the Implementation of the Agrarian Republic
Advisor: Lucy Murphy (History)

Sonia Tandon
Major: Biomedical Science
Project Title: Identification of Circulating MicroRNA as Biomarkers for Drug Induced Liver Injury using TCLN (Tethered Cationic Liposomal Nanochip) Technology
Advisor: Kalpana Ghoshal (Pathology)
Paige Trojanowski
Major: Neuroscience
Project Title: *Age-Related Impairments in the Dynamic Regulation of Microglia by Astrocytes: Relevance to Depression*
Advisor: Jonathan Godbout (Neuroscience)

Brian Upton
Major: Neuroscience
Project Title: *Low-dose Positive Allosteric Modulation of the α7 Nicotinic Acetylcholine Receptor Potentiates Mesolimbic-stimulation of Prefrontal Glutamate Release: Implications for Schizophrenia*
Advisor: John Bruno (Psychology)

Joseph Warner
Major: Electrical and Computer Engineering
Project Title: *ATLAS*
Advisor: Harris Kagan (Physics)

Daniel Petrick
Major: Political Science
Project Title: *Reconciliation through Education: A Comparison of Textbook Content in Bosnia and Herzegovina*
Advisor: Sarah Brooks (Political Science)

Emily Schueller
Major: Anthropological Sciences
Project Title: *An Ethnographic Study of Education and Status Among Muslim Women in Old City Hyderabad*
Advisor: Jeffrey Cohen (Anthropology)
URO—Economics Summer Research Fellows

Akina Ikudo
Major: Economics
Project Title: *Experimental Approach to Effective Implementation of Non-Compete Agreements*
Advisor: Kurt Lavetti (Economics)

---

URO—EEOB Summer Research Fellows

Alexandria Crawford
Major: Biology
Project Title: *A Test of the Effectiveness of Diatomaceous Earth to Reduce Mite Load and Increase Reproductive Success of the House Wren (Troglodytes aedon)*
Advisor: Jackie Augustine (Biology)

Leah Schwechheimer
Major: Biology
Project Title: *Do Reproductive Barriers Break Down when Two Closely-Related Croton Species Occur in Sympatry?*
Advisor: Carol Landry (Evolution, Ecology and Organismal Biology)

---

URO—Psychology Summer Research Fellows

Alexis Crockett
Major: Neuroscience and Psychology
Project Title: *The Effects of Insulin in the Brain and in Influencing the Neuroinflammatory Response and Memory in Young and Aged Rats*
Advisor: Gary Wenk (Psychology)

Nicole MacIlvane
Major: Psychology
Project Title: *An Investigation of Perirhinal Cortex Function in Fetal Alcohol Spectrum Disorder Model Rodents*
Advisor: Derick Lindquist (Psychology)
Jelena Majstorovic  
Major: Psychology and Spanish  
Project Title: Effortful Control as a Moderator between Worry and Insecure Attachment Style  
Advisor: Michael Vasey (Psychology)

William Schiavone  
Major: Psychology  
Project Title: Investigating Construal Level as a Potential Mechanism behind Self-Affirmation  
Advisor: Kentaro Fujita (Psychology)

Kyle Schofield  
Major: Psychology  
Project Title: Protective Factors for Transgender Adults  
Advisor: Lisa Cravens-Brown (Psychology)

Jessie Sun  
Major: Psychology  
Project Title: Acetaminophen Effects on Memory and Cognition  
Advisor: Per Sederberg (Psychology)

Taylor Wong  
Major: Psychology and Neuroscience  
Project Title: Children’s Comprehension of Temporal Events in Picture Books  
Advisor: Laura Wagner (Psychology)
RESEARCH SCHOLAR AWARDS
See http://undergraduateresearch.osu.edu/urop/rsa/awardees.html.

UNDERGRADUATE EDUCATION SUMMER RESEARCH FELLOWSHIPS
See http://undergraduateresearch.osu.edu/awards/summerfellowships/ue.html.

SOLAR AWARDS

CONFERENCE TRAVEL AWARDS

**Kevin Bloomfield**
Major: Classics, History
Presentation Title: *Socio-Economic and Political Institutions and Customs in Frankish Achaea*
Conference and Location: Byzantine Studies Association of North America, Vancouver, Canada
Advisor: Timothy Gregory (History)

**Sarah Bushman**
Major: Materials Science and Engineering
Presentation Title: *Migratory Potential of Melanoma*
Conference and Location: Biomedical Engineering Society, San Antonio, TX
Advisor: John J. Lannutti (Materials Science and Engineering)

**John Conlon**
Major: Economics, Philosophy
Presentation Title: *De-biasing Beliefs to Improve Educational Decisions*
Conference and Location: Midwest Economics Association, Minneapolis, MN
Advisor: Lucas Coffman (Economics)

**Courtney Crum**
Major: Undergraduate Non-Degree
Presentation Title: *Praxeological Learning in Context*
Conference and Location: International Organization of Social Sciences and Behavioral Research, Atlantic City, NJ
Advisor: Terri Bucci (Teaching and Learning)

**Gwendolyn Donley**
Major: Anthropological Sciences, Italian
Presentation Title: *Allostatic load varies by apolipoprotein E and ACE genotypes in American Samoans*
Conference and Location: American Association for Physical Anthropologists, Calgary, Canada
Advisor: Douglas E. Crews (Anthropology)

**Aaron G. Englander**
Major: Economics
Presentation Title: *Multidimensional Ambiguity and Individual Willingness to Take Preventative Action*
Conference and Location: Midwest Economics Association, Minneapolis, MN
Advisor: Paul Healy (Economics)
Nicholas Farrar  
Major: Biomedical Engineering  
Presentation Title: *Short Term Release from Calcium Sulfate and Polymethyl Methacrylate Beads*  
Conference and Location: Sigma Xi International Research Conference, Glendale, AZ  
Advisor: Paul Stoodley (Microbial Infection and Immunity)

Markus Harrigan  
Major: Biomedical Science  
Presentation Title: *Novel Stromal-derived Oncogenic Signals Enhance Ras-mediated Cell Proliferation*  
Conference and Location: Health Sciences Innovation Conference, Mumbai, India  
Advisor: Gustavo Leone (Molecular Virology, Immunology, & Medical Genetics)

Malori Lankenau  
Major: Molecular Genetics  
Presentation Title: *Overexpression of miR-3151 Leads to Direct Deregulation of the TP53 Pathway and is Associated with BRAF Mutations in Malignant Melanoma*  
Conference and Location: American Association of Cancer Research, San Diego, CA  
Advisor: Albert de la Chappelle (Molecular Virology, Immunology, & Medical Genetics)

Sujay Mehta  
Major: Neuroscience  
Presentation Title: *Identification of microRNA-3662 as a Novel Tumor Suppressor miR*  
Conference and Location: American Association of Cancer Research, San Diego, CA  
Advisor: Albert de la Chappelle (Molecular Virology, Immunology, & Medical Genetics)

Jennifer Orlando  
Major: Art Education  
Presentation Title: *Reggio Toddlers Discover Art as Communication and Community*  
Conference and Location: Ohio Art Education Association, Columbus, OH  
Advisor: Dennis Cannon (Arts Administration, Education, & Policy)

Samantha Streuli  
Major: Anthropological Sciences  
Presentation Title: *Trauma and Pathology in Western European Hominins: Implications for Relative Adaptability*  
Conference and Location: American Association for Physical Anthropologists, Calgary, Canada  
Advisor: Mark Hubbe (Anthropology)

Benjamin Wissel  
Major: Biomedical Engineering  
Presentation Title: *Migratory Patterns in Glioblastoma Subtypes*  
Conference and Location: Sigma Xi International Research Conference, Glendale, AZ  
Advisor: Jessica Winter (Chemical & Bimolecular Engineering)
Appendix D: Undergraduate Research Mentor Awards

2014 AWARDEES

Presenters at the 2014 Denman Undergraduate Research Forum were eligible to submit nominations for these awards. All nominees were listed in the Denman Forum Program. A student committee selected the winners for Distinguished Undergraduate Research Mentor (regular tenure-track faculty) and for Outstanding Research Mentor (research & clinical faculty, auxiliary faculty, postdoctoral researchers, and graduate students) from 104 nominations. Sample quotes from student nominations are included to illustrate the value of these mentor-student collaborations.

1) DISTINGUISHED UNDERGRADUATE RESEARCH MENTORS:

Vadim Fedorov—Physiology and Cell Biology
“Vadim Fedorov’s willingness to share his skills, knowledge and expertise has helped me to become increasingly independent in my research so that I can provide input into discussion of our research goals, hypotheses and methods, and this has and will open many doors for me in the future.”

Justin Clay Harris—Chemistry and Biochemistry
“Dr. Harris has a wonderful gift of discerning the gifts and talents of students and helping them discover what career path would best suit them.”

Shaurya Prakash—Mechanical and Aerospace Engineering
“Dr. Prakash once mentioned to me that he enjoys working with me because I always walk into his office with a smile on my face. That smile is there because I truly enjoy interacting with him as a friend.”

Jennifer Schlueter—Theatre
“Jen has become a beacon for undergraduate guidance in the theater department, fostering many undergraduate-written and produced new works through the Lab Series initiative that she proposed and now runs with great success, and always lending an ear (or a hand) whenever she can, doing it not just with kindness and respect, but with a lively passion for what she does that inspires all of her students—myself (irrevocably) included.”

Richard Yerkes—Anthropology
“Without Dr. Yerkes’ commitment to ensuring that all deserving undergraduate anthropology students are afforded the opportunity to conduct field research, I would not have followed further research opportunities since returning to the United States and would not have realized my passion for archaeology.”
PAST RECIPIENTS OF DISTINGUISHED UNDERGRADUATE RESEARCH MENTOR AWARDS:

2013 Awardees
Christopher Callam—Chemistry and Biochemistry
Mathew Coleman—Geography
Carolyn Gunther—Human Nutrition
Anil Pradhan—Astronomy
Michael Tweedle—Radiology

2012 Awardees
Helen Chamberlin—Molecular Genetics
W. Berry Lyons—Earth Sciences
Kendra McSweeney—Geography
Heather Powell—Materials Science
Daniel Strunk—Psychology

2011 Awardees
Bryan Mark—Geography
Manuel Martinez—English
Donna McCarthy—Nursing
Qingua Sun—Public Health
Jessica Winter—Biomolecular and Chemical Engineering

2010 Awardees
Franco Barchiesi—African American and African Studies
Yu-Ping Chin—Earth Sciences
Harvey Graff—English and History
Becky Mansfield—Geography
Mei Zhuang—Aerospace Engineering

2009 Awardees
Janet M. Box-Steppensmeier—Political Science
David L. Denlinger—Entomology
James W. Gregory—Aerospace Engineering
Charles Massey, Jr.—Art
Narasimham L. Parinandi—Medicine

2008 Awardees
Michael Boehm—Plant Pathology
Cynthia Clopper—Linguistics
Richard Hughes—Physics
Sarah Schoppe-Sullivan—Human Development and Family Science
Richard Swenson—Biochemistry

2007 Awardees
Robert Baioechi—Internal Medicine
Donald Dean—Biochemistry
John Grinstead—Spanish and Portuguese
Irfan Nooruddin—Political Science
Brian Winer—Physics
2) OUTSTANDING RESEARCH MENTORS

The Outstanding Research Mentor Award recognizes clinical and research faculty, lecturers, and graduate students who have provided outstanding mentorship and guidance to undergraduate researchers at Ohio State. Designed to be a complement to the Distinguished Undergraduate Research Mentor (DURM) awards, which are reserved for full-time faculty members, the ORM Award acknowledges the powerful influences that other members of the Ohio State community can have on an undergraduate’s progress and the integral roles they play in labs and classrooms.

Krista Bryson—English
“Krista’s passion is contagious, which has a tremendous effect on team morale during our ten hour site visits to Appalachian counties.”

Andrew Luttrell—Psychology
“This year-long project was not an easy task for me. Without Andy’s encouragement and substantial guidance, I would have never finished my thesis.”

PAST RECIPIENTS OF OUTSTANDING RESEARCH MENTOR AWARDS:

2013 Awardees
Kelsie Bernot—Molecular Virology, Immunology, and Medical Genetics
Michael Mandel—Computer Science and Engineering

2012 Awardees
Carmen Swain—Exercise Science
Sultana Nahar—Astronomy

2011 Awardees
Lisa Cravens-Brown—Psychology
Veronique Lacombe—Pharmacy Practice and Administration
Appendix E:  
Priorities for Donors to the URO

Give to Ohio State URO Discretionary Fund for Donations (Fund 312045):  
http://go.osu.edu/urodonate

We have many opportunities for donors to help students succeed, including the suggestions below.

GRANTS AND AWARDS

• *Summer research experience* (10 weeks, full time)  
  • $5000 per student (includes $1000 for faculty mentor) x 50 students per year = $250,000 per year  
  • Possible name: “*(Donor’s Name) Summer Research Fellowships*”

• *Travel grants to give presentations at professional conferences*  
  • $1000 per student x 20 students = $20,000 per year for travel to conduct present completed research at forums  
  • Possible name: “*Undergraduate Conference Grants*”

• *Awards for mentors of first-year students*  
  • two tracks: library research or internship within a research group  
  • student registers for independent research and receives 3–5 credits (no funds)  
  • mentors (faculty, librarians, other researchers) receive $1000 per student to pay expenses and serve as an incentive  
  • $1000 per mentor x 100 students per year = $100,000 per year  
  • Possible name: “*Early Research Opportunities Program*”

• *Mentoring awards for graduate students*  
  • $1000 award (advanced Ph.D. candidates only) for supervising an undergraduate student’s research project  
  • $1000 x 500 per year = $50,000 per year  
  • Possible name: “*Graduate Student Mentor Awards from URO*”

• *Mentoring awards for faculty*  
  • Each year, URO will recognize five faculty members with outstanding records of sponsoring undergraduate research.  
  • $1000 x five faculty members = $5000 per year  
  • Possible name: “*(Donor’s Name) Award for Outstanding Undergraduate Research Mentor*”

OTHER OPTIONS FOR GIVING:

1) Support the *Denman Undergraduate Research Forum* each spring. This forum serves as a showcase for over 500 students annually and as a huge celebration involving the entire university community. The forum presents the very best achievements of our most creative and resourceful students. However, long-term funding from generous current donors is not guaranteed. We are actively seeking additional support to be able to continue this tradition of excellence. Total cost:  $125,000 per year plus staff time.

2) *Summer Undergraduate Research Institute*. This expanded version of our
current institute will provide programs and a sense of community for undergraduates doing research on campus during the summer. Funds are needed for coordination and for events. Funds for fellowships are listed above. $25,000 per year; Possible name: “(Donor’s Name) Summer Undergraduate Research Institute.”

3) Fall Undergraduate Research Forum to be held each year. Building on our current fall forum, this larger event will accommodate students who are unable to participate in the Denman Undergraduate Research Forum in Spring, especially students who did research during the summer, and will add another venue for students to present their research. Funding is needed for facility costs, refreshments, publicity, and awards. $80,000 per year. Possible name: “(Donor’s Name) Fall Forum for Undergraduate Research.”

4) Summer Term Humanities Institute. Support for research collaborations between a faculty member in the humanities ($7,000) and three undergraduate students ($4,000 per student). Three groups per summer for ten weeks of collaboration ($19,000 x 3 = $57,000). Possible Name: “(Donor’s Name) Summer Humanities Institute.”

5) URO Sponsors Group. A group of sponsors will provide discretionary funds for building the Undergraduate Research Program, including the objectives listed above.
   Participating donors will contribute $4,000 or more per year per person.
   Members will receive newsletters, invitations to URO events, and opportunities to meet student researchers.
   Possible name: “Friends of Undergraduate Research at Ohio State”