Cover photos (clockwise from top left):

Christine Wu; Max Reisinger; Dustin Homan; Sara Rapaport
Needless to say, I am very proud of the undergraduate research program at Ohio State, which has become singularly important to our University and the quality of our undergraduate students.

**E. Gordon Gee, President, September 20, 2011**

Research universities like Ohio State are among our country’s most powerful assets. They achieve breakthrough discoveries that address our most critical problems. They drive our economic recovery and fuel our competitiveness throughout the world. The work of undergraduate researchers helps shape the path toward those accomplishments.

**Joseph A. Alutto, Executive Vice President and Provost**

The Ohio State University is one of the world’s most outstanding and comprehensive research universities. The range of opportunities we provide for our students in the research arena is unparalleled. By working with our 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**

We know that one of the keys to students’ success in college is the degree to which they are engaged with their own learning and development. We also recognize that active involvement in research as an undergraduate touches many of the aspects that have been linked to positive student engagement. Our Undergraduate Research Office helps students identify research opportunities, link to faculty engaged in research, and connect to other undergraduate students involved in research activities. This connects them to their disciplines, enhances critical thinking skills, encourages collaborative learning, and helps create supportive social and learning environments. The partnerships that have developed among URO, our faculty and our students are extraordinary, and our undergraduates truly are the beneficiaries of these partnerships.

**Wayne E. Carlson, Vice Provost and Dean of Undergraduate Education**
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Quotes from two undergraduate researchers in 2011:
I have learned and achieved more by doing research than I previously thought possible during my undergraduate career. Not only has research enriched the time that I spent at Ohio State, it also gave me direction to help mold my future as a physicist.—Jake Connors

These experiences give life and enthusiasm to my education that I cannot get just sitting in a library.—Brittany Shrefler
The Undergraduate Research Office (URO)

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

**Interim Director:** Dr. Anne E. Carey, School of Earth Sciences (June–December)

**Assistant Director:** Helene Cweren

**Program Coordinator:** Michael D. Bierschenk (through August)

**Program Assistant:** Mara P. Penrose (beginning October)

**Graduate Administrative Associates:**
- Monica J. Crary (through September)
- Ashley C. Owens (beginning September)

**Undergraduate Assistants:**
- Jacqueline N. Lipphardt
- Benjamin J. Briskin (Winter and Spring Quarters)
- Ashley L. Bartman (Summer Quarter)
- Tiffany L. Wang (Autumn Quarter)

**2011-12 Faculty Advisory Committee**

- Paul A. Beck  Department of Political Science
- James E. Kinder  Chair, Department of Human Nutrition
- Kendra McSweeney  Department of Animal Sciences
- Julianne M. Serovich  Chair, Department of Human Development and Family Science
- Amanda A. Simcox  Department of Molecular Genetics
- David L. Tomasko  Associate Dean for Undergraduate Education and Student Services, College of Engineering
- Valarie L. Williams  Associate Dean for Curriculum, College of Arts and Sciences
- Linn D. Van Woerkom  Associate Provost and Director of the Honors & Scholars Center

**Ex Officio Members:**

- Wayne E. Carlson  Vice Provost and Dean for Undergraduate Education
- Janet M. Weisenberger  Senior Associate Vice President, Office of Research
2011–12 Student Advisory Committee

Co-Chairs:

Ayla Cash Molecular Genetics
Kunal Parikh Chemical Engineering

Members:

Ashley Bartman Chemistry, Art History
Katie Bauer Linguistics
Russel Bonneville Biomedical Sciences
Alison Cerrato Civil Engineering
Alex Chaitoff Political Science/Microbiology
Theresa Fisher Speech and Hearing Science
Chris Gaw Biology
Nandan Gokhale Microbiology
Mackenzie Hills Human Development and Family Science
Grant Joslin Anthropology
Anthony Kiragu Biology
Dominic Labanowski Electrical Engineering
Edwards Luersman Plant Health Management
Jennifer McPhee Molecular Genetics
Scott Moreland Physics, Mathematics
Danielle Rickert Psychology
Justin Schulze International Studies, Economics
Ronald Siebenaler Biomedical Sciences
Breonna Slocum Biochemistry
Sam Stuard Engineering Physics
Matt Teegarden Chemistry, Food Science and Technology
Jeffrey Thompson Geological Sciences
JJ Willard Molecular Genetics
Tessa Xuan Biochemistry
Danny Yanes Biology
Daniel Zeleznikar Electrical Engineering

JUROS Representative: Jennifer Kmetich
2011 Highlights

Since its establishment in 2006, the Undergraduate Research Office (URO) has functioned as a central clearinghouse for information about 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. A few highlights from 2011:

- Our workshops, events, and short presentations in classes reached more than 3,600 students in 2011, including nearly 25% of the freshman class. More than 5,000 students, faculty, and staff receive email newsletters and announcements, which are also posted on Facebook and the URO website.

- Student participation in research is growing. Since 2007 we have seen:
  - 125% increase in students enrolling for independent research courses (699 and 783H)
  - 64% increase in the number of students presenting at the annual Denman Undergraduate Research Forum. From 2010 to 2011, there was 7% increased participation in this forum (580 students participated in 2011).

- An all-time high of 336 students took part in the URO Summer Undergraduate Research Institute (a 19% increase in participation over 2010) and 89 students gave presentations at the Fall Undergraduate Research Forum. This year’s forum was co-sponsored by the University Libraries and represents a significant new partnership for the URO.

- The student-led, peer-reviewed Journal of Undergraduate Research at Ohio State, known as JUROS, published Volume 2 online in 2011. In Spring Quarter, JUROS also published 300 copies of JUROS: Oculus Award Edition 2010-2011, a print version of the online journal.

- The proposal to establish a new undergraduate research thesis option for non-honors students was approved by the University Board of Trustees. Under the new plan, students may graduate with research distinction or with honors research distinction. We anticipate this will lead to an increase in the number of students writing theses.

- Allison Snow and Helene Cweren each gave a presentation at a conference sponsored by the Council on Undergraduate Research, the leading national organization for undergraduate research.

- The URO has embraced social media and established a Twitter account (@OSU_URO). SURI 2011 used a Facebook page and a Google calendar to keep the SURI students apprised of the many summer activities.

All this work could not have been accomplished without the hard work of the URO staff and students. We greatly appreciate the many contributions of our program manager and assistant director, Helene Cweren, our former program coordinator Michael Bierschenk and current program assistant Mara Penrose, our former and current graduate administrative assistants Monica Crary and Ashley Owens, and a large crew of extremely enthusiastic students, including Ayla Cash, Kunal Parikh, Jackie Lipphardt, Ben Briskin, Ashley Bartman, and Tiffany Wang. We also acknowledge on-going assistance from our Faculty and Student Advisory Committees, the Office of Academic Affairs, Honors and Scholars, and the Office of Research. 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.

Anne E. Carey, Ph.D., Interim Director

Allison A. Snow, Ph.D., Director (on sabbatical June–December)
Strategic Plan for the Undergraduate Research Office

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 in all academic disciplines.

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

ACTIVITIES
- Introduce students to rewarding research experiences
- Help students find faculty mentors and funding
- Help students present their findings at local and national symposia
- Support the Denman Undergraduate Research Forum
- Promote recognition of student research accomplishments
- Help forge new connections between teaching and research at Ohio State

CURRENT STATUS OF THE UNDERGRADUATE RESEARCH OFFICE
Staff: 50% time Interim Director (Professor Anne E. Carey)
75% time Assistant Director (Helene Cweren)
Full-time Program Assistant (Mara Penrose)
50% time Graduate Administrative Assistant (Ashley Owens)

Budget for FY 11-12: $350,175 for salaries, benefits, fellowships, supplies, and services

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, especially the Honors and Scholars Center. Our annual budget supports the costs of four office rooms in Page Hall, computer services, publicity, brochures, maintaining the URO website, hosting workshops and other events, 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 assistant director to at least one professional meeting per year. This funding is adequate for our current needs, but additional funds will be required to provide better and more easily obtained research experiences for our students.

Other major sources of annual funding for undergraduate research include more than $714,000 for honors thesis scholarships (distributed by college committees), $25,000 for educational enrichment grants (distributed by the Undergraduate Student Government), summer programs offered by other units, and funds from many other programs. The annual Denman Undergraduate Research Forum is funded by the Honors and Scholars Center, the Office of Development, and the Office of Research, and is organized by the Honors & Scholars Center.
LONG-TERM GOALS AND BENCHMARKS

We plan to become known as a national leader in promoting undergraduate research at large public universities. Within the next ten years, we hope that all qualified students who seek an independent research experience will have this opportunity. Even though research experience in the STEM disciplines (Science, Technology, Engineering, and Mathematics) has been the focus of state and national initiatives to sustain science-related professions, we also strive to increase research participation in the social and behavioral sciences, arts, and humanities, and to enhance undergraduate education throughout the newly configured College of Arts and Sciences.

To take full advantage of Ohio State’s status as a top research institution, the URO provides a coordinated program that allows more undergraduates to gain meaningful research experiences. Most funding for undergraduate research activities is decentralized, provided at college, school, and department levels. Across campus, funding for undergraduate research is neither sufficient nor permanent, fluctuating from year to year. In particular, we urgently need funding for students’ summer research opportunities and travel to give presentations at professional meetings.

Benchmarks as of January 1, 2009:

- During the next five years, we expect participation in Ohio State-sponsored undergraduate research forums to increase each year. This includes the Denman Undergraduate Research Forum and others sponsored by departments and colleges.
- During the next five years, we expect the numbers of students who complete a thesis and graduate “with research distinction” to increase annually.
- During the next five years, we expect the numbers of students who receive academic credit for research to increase annually.
- By 2013, we expect to see increases in the numbers of Rank 4 students in the STEM fields who have participated in research. Progress will be assessed using data from the 2013 National Survey on Student Engagement.
- During the next five years, we expect to generate additional funds from private donors and extramural grants to support undergraduate researchers.

PLANS FOR MEETING LONG-TERM GOALS

Some of our long-term goals and benchmarks can be attained by strategically focusing current resources and staff time on these priorities. However, current funding for running the Undergraduate Research Office limits possibilities for expanded services and new initiatives. Extramural funding is one means to increase services and initiatives.

We have collaborated with other units on campus to obtain federal grants and foundation awards for undergraduate research. For example, our office supported an Ohio LSAMP Alliance proposal submitted in October 2011 (spearheaded by Dr. Barbara Fink, Faculty Fellow with the Office of Diversity of Inclusion, and Associate Professor, College of Optometry) and are waiting to hear in Spring 2012 whether the University’s proposal has been accepted. In 2009 we received a Beckman Scholars Award to fund undergraduate researchers in the Departments of Chemistry, Biochemistry, and the School of Biomedical Science ($115,800). A renewal proposal to continue this grant was submitted in September 2011 and results of that effort should be known by Spring 2012. We will continue to pursue external sources of funding as such opportunities present themselves.
Metrics of Participation in Undergraduate Research

The most reliable indices we have found for evaluating trends in the numbers of undergraduate researchers at Ohio State include the number of students presenting at the Denman Research Forum, the number of honors theses written, and the number of students enrolled for credit in research class numbers (Table 1). We view these data as indicators of research activity rather than comprehensive summaries. A complete accounting of undergraduate research is difficult because not all research projects culminate in a thesis or a presentation at the Denman Undergraduate Research Forum. 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 these achievements. In the future, we hope that more complete data will become available, for example when reporting through OSU:pro is required for all faculty members’ annual activity reports. Currently, this is only required for new faculty and for promotion and tenure dossiers, but some colleges are beginning to require all faculty to use OSU:pro.

PRESENTATIONS AT THE DENMAN UNDERGRADUATE RESEARCH FORUM AND OTHER EVENTS

In 2011, participation in the Denman Forum increased to an all-time high of 580 students, an increase of 7% in student participation over 2010 (Table 1). Honors students were 64% of the presenters. A majority of the presenters (57%) were students majoring in the Arts and Sciences (Table 2).

Overall, we estimate that 1,257 student presentations were given at Ohio State in 2011 (Table 3). These included not only traditional research but also creative projects from students in the arts. Ten students presented posters at the Newark campus Undergraduate Research Form. The Fall Undergraduate Research Forum, organized by the URO to showcase summer undergraduate research accomplishments is now in its fifth year. Participation numbered 89 students in 2011.

RESEARCH THESES

In 2011, 314 students completed an honors thesis and graduated With Distinction. This is the highest number of students graduating with research distinction during the nine years for which data are compiled (Table 3). More than half of the honors theses were written by students in the Arts and Sciences (56%) including 45 theses in the arts and humanities (Table 2).

The URO is working with the Honors and Scholars Center, the College of Arts and Sciences, and other offices on campus to find ways to increase the number of students who complete an honors thesis or the new thesis option. In January 2011 the University Senate approved and in February 2011 the Board of Trustees voted on the proposal to change the Faculty Rules about theses. The changes now allow non-honors students who complete a thesis to graduate with research distinction and to benefit from having this recorded on the academic transcript. Honors students who complete and defend a thesis will graduate with honors research distinction noted on the transcript. Information about the new undergraduate research thesis option is posted on the URO website, and our office will continue to serve as a central resource for implementing the university-wide guidelines.

ENROLLMENTS FOR RESEARCH CREDIT

The number of students who received credit for honors thesis research (783H courses) declined 10% from 2010 (although the overall number of theses increased). In contrast, the number of students who received credit for research (699 courses) increased by 23% in 2011 compared to 2010 (Table 1). Overall, when one looks at our nine-year data compilation, the number of students enrolled for research credits has nearly tripled (Table 1).
NATIONAL SURVEY FOR STUDENT ENGAGEMENT (NSSE)
The National Survey for Student Engagement, which is administered every three years, will be conducted again in 2013 and we anticipate using those data to assess our progress relative to the national trends. This study provides another indicator of increasing participation in research. Data from NSSE have the advantage of being drawn from a large, representative sample of Rank 4 students, most of whom are seniors. For this reason we are again including the 2010 results in this year’s report.

Ohio State students were asked if they have “worked on a research project with a faculty member outside of course or program requirements.” Between 2007 and 2010, the percentage of students who answered “yes” to this question increased from 20.8% to 26.0% in Arts & Sciences, from 14.4% to 17.5% in Professional Schools other than health sciences, and from 17.5% to 22.4% overall (Table 1). By 2010, participation in research was especially high in natural and mathematical sciences (45.6%), allied medical professions (35.4%), engineering (23.9%), and social and behavioral sciences (23.8%). In addition, across disciplines another 13.6% of student respondents in the 2010 survey reported that they “plan to” work on a research project, for a total of 36.0% who have either done research or plan to. Those who “plan to” do research were probably juniors who had Rank 4 status due to accelerated progress and having completed AP courses in high school.

STUDENTS IN PAID SUMMER RESEARCH PROGRAMS
The 131 students registered with the URO as participating in various summer research programs at Ohio State in 2011 was similar to that in 2010 (Table 4). Most of these students received scholarships or stipends (typically $3,000–$5,000) for full-time research with an Ohio State faculty member during Summer Quarter. Although the number of students in some programs declined, other opportunities have emerged. We hope to see these numbers increase substantially over the next few years by increasing extramural funding and contributions from donors.

Students who are funded by individual faculty members are not included in Table 4. Based on participation of students in the Summer Undergraduate Research Institute, we estimate that individual faculty members and other sources supported approximately 100 additional student researchers during the summer. Moreover, an unknown number of students conducted summer research at other institutions.

FACULTY WHO USED THE URO WEBSITE FORM TO FIND STUDENT RESEARCHERS
A similar number of faculty members used our targeted email announcements to find undergraduate researchers in 2011 as had used our services in 2010 (53 faculty members). 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.
**Table 1. Metrics of student participation in undergraduate research, 2004–2011**

<table>
<thead>
<tr>
<th>Year</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of Denman Undergraduate Research Forum presenters</strong></td>
<td></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>326</td>
<td>354</td>
<td>354</td>
<td>415</td>
<td>522</td>
<td>540</td>
<td>580</td>
</tr>
<tr>
<td>Increase over previous year</td>
<td>19%</td>
<td>18%</td>
<td>9%</td>
<td>0%</td>
<td>17%</td>
<td>26%</td>
<td>3%</td>
<td>7%</td>
</tr>
<tr>
<td>Percent who were honors students</td>
<td>77%</td>
<td>65%</td>
<td>66%</td>
<td>73%</td>
<td>71%</td>
<td>68%</td>
<td>66%</td>
<td>64%</td>
</tr>
</tbody>
</table>

| **Number of honors theses**<sup>1</sup> | | | | | | | | |
| (per academic year; AY2003 is summer 2002–spring 2003) | | | | | | | | |
| Total number of theses | 292 | 276 | 277 | 295 | 285 | 271 | 292 | 314 |

| **Number of students enrolled for research credit**<sup>2</sup> | | | | | | | | |
| (total enrolled per academic year; AY2003 is summer 2002–spring 2003) | | | | | | | | |
| Total Research & Independent Study (783H, 699, 693) | 6160 | 6399 | 6306 | 6351 | 6011 | 6670 | 6735 | 6601 |
| Independent Study (693)<sup>3</sup> | 5393 | 5572 | 5478 | 5378 | 4664 | 5061 | 4731 | 4404 |
| Honors Research (783H) | 701 | 711 | 680 | 631 | 660 | 668 | 819 | 738 |
| Research (699)<sup>4</sup> | 66 | 116 | 148 | 342 | 687 | 941 | 1185 | 1459 |
| Total Research Enrollment (783H, 699) | 767 | 827 | 828 | 973 | 1347 | 1609 | 2004 | 2197 |

"Have you worked on a research project with a faculty member outside of course or program requirements?"
National Survey of Student Engagement, administered every 3 years<sup>5</sup>
Percent of Rank 4 Ohio State students answering "yes" (number of responses in parentheses)

<table>
<thead>
<tr>
<th>Category</th>
<th>All Students</th>
<th>Arts and Sciences</th>
<th>Health Sciences</th>
<th>Other Professional Schools</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>19.0%&lt;sup&gt;6&lt;/sup&gt; (447)</td>
<td>19.4%&lt;sup&gt;6&lt;/sup&gt; (216)</td>
<td>*&lt;sup&gt;6&lt;/sup&gt;</td>
<td>18.6%&lt;sup&gt;6&lt;/sup&gt; (210)</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>-</td>
<td>*&lt;sup&gt;6&lt;/sup&gt;</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>17.5%&lt;sup&gt;6&lt;/sup&gt; (861)</td>
<td>20.8%&lt;sup&gt;6&lt;/sup&gt; (384)</td>
<td>*&lt;sup&gt;6&lt;/sup&gt;</td>
<td>14.4%&lt;sup&gt;6&lt;/sup&gt; (400)</td>
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<tr>
<td></td>
<td>-</td>
<td>-</td>
<td>-&lt;sup&gt;6&lt;/sup&gt;</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>22.4%&lt;sup&gt;6&lt;/sup&gt; (2434)</td>
<td>26.0%&lt;sup&gt;6&lt;/sup&gt; (1184)</td>
<td>-</td>
<td>17.5%&lt;sup&gt;6&lt;/sup&gt; (1018)</td>
</tr>
</tbody>
</table>

<sup>1</sup> Data from Anne Krabacher, Honors & Scholars Center; Columbus campus data<br> <sup>2</sup> Data from Linda Katunich, University Registrar; Columbus campus data<br> <sup>3</sup> Not all Independent Study (693) credits are used for research<br> <sup>4</sup> Non-honors research credit (699) was a new option in AY2003<br> <sup>5</sup> Data from Sheila Craft, Office of Academic Affairs; Columbus campus data from 2004 (random sample), 2007 (random sample), and 2010 (complete census; 25% response rate)<br> <sup>6</sup> Too few responses
Table 2. Percent of theses and Denman poster presenters by college or school*

(based on the college of the student’s major; theses listed per academic year; AY2008 is summer 2007–spring 2008, etc.)

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Arts and Sciences</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>57%</td>
<td>57%</td>
<td>64%</td>
<td>57%</td>
</tr>
<tr>
<td>Biological Sciences</td>
<td>14</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>17</td>
<td>16</td>
<td>25</td>
<td>22</td>
</tr>
<tr>
<td>Social &amp; Behavioral Sciences</td>
<td>19</td>
<td>19</td>
<td>18</td>
<td>21</td>
<td>18</td>
<td>17</td>
<td>15</td>
<td>14</td>
</tr>
<tr>
<td>Math and Physical Sciences</td>
<td>8</td>
<td>6</td>
<td>7</td>
<td>7</td>
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<td>Arts</td>
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<td>7</td>
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<td>Other</td>
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<td>Engineering</td>
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<td>Food, Agricultural, &amp; Env. Sciences</td>
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<td>Allied Medical Professions</td>
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<td>5</td>
<td>10</td>
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<td>Education and Human Ecology</td>
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<td>6</td>
<td>6</td>
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<tr>
<td>Nursing</td>
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<tr>
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<td>1</td>
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</tr>
<tr>
<td>Business</td>
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<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Total number of theses or presenters</td>
<td>285</td>
<td>271</td>
<td>292</td>
<td>314</td>
<td>415</td>
<td>522</td>
<td>540</td>
<td>580</td>
</tr>
</tbody>
</table>

*2008–2010 numbers reflect only honors theses; 2011 forward will include both theses and honors theses.
Table 3. Numbers of research and creative activity presentations at Ohio State, 2009-2011

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Event</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Winter</td>
<td>Dept. of Art BFA Exhibition</td>
<td>-</td>
<td>16</td>
<td>15</td>
</tr>
<tr>
<td>Spring</td>
<td>Denman Undergraduate Research Forum—all disciplines</td>
<td>522</td>
<td>540</td>
<td>580</td>
</tr>
<tr>
<td>Spring</td>
<td>Undergraduate Research Forum at Ohio State Newark—all disciplines</td>
<td>9</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>Spring</td>
<td>Arts &amp; Sciences—Natural &amp; Math. Sciences Undergraduate Research Forum</td>
<td>85</td>
<td>106</td>
<td>97</td>
</tr>
<tr>
<td>Spring</td>
<td>Arts &amp; Sci—Social &amp; Behav. Sciences Denman Preview</td>
<td>7</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Spring</td>
<td>Arts &amp; Sciences—Arts &amp; Humanities Undergraduate Research Colloquium</td>
<td>9</td>
<td>6</td>
<td>-</td>
</tr>
<tr>
<td>Spring</td>
<td>College of Education &amp; Human Ecology Honors Poster Presentations</td>
<td>12</td>
<td>57</td>
<td>12</td>
</tr>
<tr>
<td>Spring</td>
<td>College of Engineering Undergraduate Research Forum</td>
<td>-</td>
<td>35</td>
<td>31</td>
</tr>
<tr>
<td>Spring</td>
<td>College of Food, Agr., &amp; Env. Sciences Undergraduate Research Forum</td>
<td>36</td>
<td>29</td>
<td>33</td>
</tr>
<tr>
<td>Spring</td>
<td>College of Nursing Undergrad Research Night</td>
<td>26</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Spring</td>
<td>Undergraduate Juried Art Exhibition^3</td>
<td>200</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>Spring</td>
<td>Dept. of Art BFA Exhibition</td>
<td>21</td>
<td>52</td>
<td>60</td>
</tr>
<tr>
<td>Spring</td>
<td>Dept. of Design Spring Exhibition</td>
<td>35</td>
<td>54</td>
<td>54</td>
</tr>
<tr>
<td>Spring</td>
<td>Student Generated New Work (Theatre)^4</td>
<td>6</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Spring</td>
<td>Dept. of East Asian Lang. &amp; Literatures Undergrad Research Forum</td>
<td>9</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Spring</td>
<td>Dept. of Psychology Undergrad Research Colloquium</td>
<td>24</td>
<td>19</td>
<td>24</td>
</tr>
<tr>
<td>Spring</td>
<td>Ohio State Medical Center Research Day</td>
<td>9</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>Summer</td>
<td>Plant Molecular Biology and Biotechnology—Summer Undergraduate Research Experience Poster Session</td>
<td>20</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Summer</td>
<td>SROP Ohio State (sponsored by the Graduate School)^5</td>
<td>9</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Summer</td>
<td>Research on Research Student Showcase (sponsored by TELR®)</td>
<td>10</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Summer</td>
<td>School of Earth Science—Shell Undergraduate Poster Forum</td>
<td>20</td>
<td>9</td>
<td>11</td>
</tr>
<tr>
<td>Autumn</td>
<td>Dept. of Art BFA Exhibition</td>
<td>-</td>
<td>23</td>
<td>16</td>
</tr>
<tr>
<td>Autumn</td>
<td>Fall Undergraduate Research Forum (sponsored by URO)</td>
<td>66</td>
<td>97</td>
<td>89</td>
</tr>
</tbody>
</table>

TOTAL number of students^1 1135 1280 1257

---

1. Some students presented at more than one event
2. This number represents graduate and undergraduate students.
3. Juried to 200
4. Undergraduate playwrights
5. Ohio State students in the CIC Summer Research Opportunities Program at Ohio State
6. Technology Enhanced Learning and Research, now a part of Learning Technology Services; program discontinued in 2010
Table 4. Summer undergraduate research internships at Ohio State, 2006–2011

(Numbers of Ohio State students with scholarships or stipends; typically 10 weeks at 40 hours per week.)

<table>
<thead>
<tr>
<th>Program</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>URO Summer Research Fellowship</td>
<td>-</td>
<td>12</td>
<td>16</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>Psychology–URO Summer Undergraduate Research Fellowships</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Holbrook Research Abroad Fellowships</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>University Honors Summer Research Scholarships</td>
<td>13</td>
<td>7</td>
<td>6</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>Mayers Summer Research Scholarships (Natural &amp; Mathematical Sciences)</td>
<td>10</td>
<td>14</td>
<td>13</td>
<td>14</td>
<td>20</td>
</tr>
<tr>
<td>American Heart Association Summer Undergraduate Research Fellowship</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Beckman Scholars Program in Biochemistry, Chemistry, &amp; Biomedical Science</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>CIC Summer Research Opportunities Program</td>
<td>20</td>
<td>11</td>
<td>8</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>Ohio State Biomedical Informatics Undergraduate Internship</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>6</td>
</tr>
<tr>
<td>Research on Research (Learning Technology Services)</td>
<td>10</td>
<td>9</td>
<td>10</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Undergraduate Community-Based Research</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Summer Undergraduate Research Program in the Department of Biochemistry</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Shell Undergraduate Research Experience—Earth Sciences</td>
<td>-</td>
<td>8</td>
<td>20</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>Summer Undergraduate Research Program in Astrophysics</td>
<td>6</td>
<td>6</td>
<td>7</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Physics Summer Research Interns</td>
<td>4</td>
<td>7</td>
<td>7</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>Biology—Stone Laboratory REU (unpaid positions)</td>
<td>6</td>
<td>9</td>
<td>7</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>Plant Mol. Biology &amp; Biotechnology Summer Undergraduate Research Experience</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Summer Research Internships in Plant Pathology</td>
<td>7</td>
<td>5</td>
<td>4</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Engineering Experimental Station Internship</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>College of Dentistry Undergraduate Research Program—Dr. Rudy Melfi Research Fellowship</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Summer Undergraduate Research Fellowships in the Pharmaceutical Sciences</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>NSF REU Mathematical Biosciences Institute</td>
<td>4</td>
<td>-</td>
<td>-</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>NSF REU Site—Molecular Genetics &amp; Biochemistry</td>
<td>3</td>
<td>6</td>
<td>8</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>NSF REU Nanoscale Science &amp; Engineering Center</td>
<td>7</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>3</td>
<td>7</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total Ohio State students</td>
<td>107</td>
<td>105</td>
<td>119</td>
<td>130</td>
<td>131</td>
</tr>
</tbody>
</table>
Year-Long Programming for Ohio State Undergraduates

OVERVIEW
The URO offers a full year cycle of programs to encourage and support student participation in research. We estimate that our workshops, events, and short presentations in classes reached more than 3,600 students in 2011, a 12.5% increase over 2010. Autumn Quarter presentations to freshman survey courses alone reached approximately 1,600 students, representing 24% of the class entering in fall of 2011.

Table 5. 2011 URO Programs—Academic Year

<table>
<thead>
<tr>
<th>Programs</th>
<th>Autumn</th>
<th>Winter</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Informational Presentations/Workshops</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monthly Information Sessions</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Research with Human Subjects: IRB Training</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>International Research Panel or Info Session</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Speaking About Research: Student Presentations</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Finding Your Research Niche (with University Libraries)</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Summer Research Opportunities—Planning Ahead</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q &amp; A for Summer Research Opportunities</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Poster Presentation Basics</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Student Panels</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spilling the Beans (How and Why I Do Research)</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Table Talks: Peer Research Discussion by Field</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>First Year Experience Success Series (How to Get Started)</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thesis or Not?</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>What Can I Do With My Research?</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Faculty Panels</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mershon Faculty Panel (social and political science)</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Faculty Perspectives on Undergraduate Research</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Undergraduate Education Colloquium (The Ohio State</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Undergraduates in Latin America)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Co-presentations with Honors &amp; Scholars</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intro to the Denman Forum</td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

Our programs generally attract high attendance and receive positive feedback on evaluations. We offer many standard programs that are repeated during the academic year (Table 5) and we continue to introduce new programming and collaborate with other offices. For example, in spring 2011 we introduced two new sessions, one for students in STEM disciplines and the other for students in the Arts and Humanities, entitled “Speaking About Research” where undergraduate researchers gave oral presentations on their own current research.

In addition to scheduled programs, we offer individual advising, both walk-in and by appointment. 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 150 Peer Research Contacts are listed by discipline on our website. These student researchers reported answering more than 60 student email inquiries in 2011.

**Collaborators**
Entities across the Ohio State campus collaborate with us on programming. We gratefully acknowledge the ongoing contributions to our year-long programming of the Honors & Scholars Center, the Office of Responsible Research Practices, the Office of International Affairs, the University Center for the Advancement of Teaching, Career Connection, University Libraries, the Division of Natural and Mathematical Sciences, the Department of Psychology, Stone Laboratory, the Mershon Center for International Security Studies, and The Goldberg Center for Excellence in Teaching.

**Evaluations**
We distribute, collect, and summarize evaluation forms at each URO-sponsored event. This feedback has been helpful for improving our programs. For example, using student evaluations from the 2010 Student Poster Forum, we were able to generate more comprehensive peer responses in 2011. In addition, the Student Advisory Committee, which meets twice each quarter, gives the URO staff 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 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 program.

The URO continuously recruits experienced undergraduate student involvement in the office through a variety of means. Each winter quarter there is a formal call for new Peer Research Contacts and a group orientation. However, recruitment of Peers Research Contacts is an ongoing effort especially in disciplines where greater representation is needed. In addition, underclass participants in the Denman Undergraduate Research Forum are invited to become involved with the URO, as are Ohio State participants in the Summer Undergraduate Research Institute (SURI). URO staff also attends student poster forums around campus and to speak directly with students about their research and about their interest in becoming more active within the URO. Informal identification of undergraduate research leaders occurs throughout the year.

**Presentations and Fairs**
Over the course of the year, URO staff and volunteers participated in approximately 160 research-promoting events at Ohio State. Such events include nine campus fairs, 35 presentations to freshman survey courses, and more than 30 invitations around campus to talk about undergraduate research.

**AUTUMN QUARTER**
Much of our effort during the Autumn Quarter is devoted to outreach. In fall 2011 we gave 34 presentations to freshman survey classes, hosted two First Year Experience Success Series Panels and two talks at Honors & Scholars and we participated in six campus fairs.

The main URO event during Autumn Quarter is the Fall Undergraduate Research Week and Student Poster Forum, held in 2011 on Friday, October 14, in the Buckeye Reading Room at Thompson Library. This year’s forum was co-sponsored by University Libraries for the first time, a significant new partnership for the URO. The purpose of the 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 2011, 89 students presented 82 posters, and an estimated 500 students, staff, faculty and guests attended and viewed the Poster Forum;
the total student attendance at the three panel discussions scheduled during the Research Week preceding the forum was 155.

Based on survey responses from 51 student presenters (61% response rate), we found:

- 90% were in their 3rd or 4th year at the university
- 45% were presenting a poster for the first time
- 45% reported that they had been conducting their research for a year or more
- 90% expected to continue with their research in the coming quarters
- 59% were Honors students
- 45% utilized the URO’s website when working on their poster
- 19% of those who presented had attended a poster presentation workshop during the summer or fall
- 59% reported that their faculty advisor stopped by to see their poster at the Forum
- 90% rated the overall value of presenting at the Poster Forum as above average or excellent
- 100% ranked the overall quality of the Poster Forum as above average or excellent

Student presenters and guests indicated that they appreciated the new library venue utilized for the forum.

Based on the 2010 evaluation forms, when students had requested greater feedback on their posters and presentations, a process for providing formal feedback to presenters was implemented. Each student presenter was assigned one other poster to view, comment upon, and return a feedback form. In addition, the URO Student Advisory Committee organized volunteers to view and return feedback forms on an assigned group of posters. This process will be continued in future years.

WINTER QUARTER
In addition to our regular programs (Table 5), we offered several Winter Quarter events in collaboration with other offices at Ohio State, such as the pre-Denman Forum workshops jointly presented with the Honors & Scholars Center. The Winter Quarter feature URO program was part of the campus-wide Colloquium on Growing International Perspectives, sponsored by the Office of Undergraduate Education. Our successful program and theme in 2011, Ohio State Undergrads in Latin America, had 45 students in attendance. This event included three undergraduate students who had conducted research in Latin America, each from a different discipline. Their presentations led to lively discussions that continued during a reception.

SPRING QUARTER
The highlight of Spring Quarter is the Denman Undergraduate Research Forum. The Honors & Scholars Center organizes the overall forum but the URO is actively involved in planning, publicizing, and co-hosting this nationally recognized event. The URO schedules pre-Denman workshops and markets the event on campus, in part with widely distributed publicity posters to encourage more students and faculty to attend the forum. We also coordinate the Distinguished Undergraduate Research Mentor Awards to recognize the role of faculty in undergraduate research (Appendix D).

SUMMER QUARTER – The Summer Undergraduate Research Institute
The Summer Undergraduate Research Institute (SURI) provides ongoing communication and support, professional development and social programs, and a sense of community for undergraduate researchers on campus. Students in formal programs and those working independently with a faculty mentor are all welcome to participate. We also encourage registration from Ohio State undergraduates conducting research outside of Ohio State (e.g. at other universities or abroad) as a mechanism for staying in touch and including them in the Fall Student Poster Forum.
Table 6. 2011 Participation in SURI 2008-2011

<table>
<thead>
<tr>
<th>Participation in SURI</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of participants</td>
<td>195</td>
<td>255</td>
<td>281</td>
<td>336</td>
</tr>
<tr>
<td>change in formal programs</td>
<td>–</td>
<td>+31%</td>
<td>+10%</td>
<td>+20%</td>
</tr>
<tr>
<td>from other universities</td>
<td>10%</td>
<td>17%</td>
<td>16%</td>
<td>13%</td>
</tr>
<tr>
<td>in STEM disciplines</td>
<td>83%</td>
<td>89%</td>
<td>87%</td>
<td>85%</td>
</tr>
</tbody>
</table>

SURI 2011, the fourth year of the program, included 336 total students, 293 of whom were Ohio State students. Of the Ohio State students, 91% stayed on-campus at Ohio State or were in the Columbus area, and only 9% were conducting research elsewhere.

SURI participation in summer 2011 increased by 20% over 2010 and 72% since 2008, the year SURI began. Only 13% of students conducted research outside of STEM disciplines, consistent with the observation that there are far fewer formal programs and funding opportunities for these students.

**SURI Recruitment**

Recruitment for SURI occurs during the Spring Quarter when campus-wide communication is still possible. To reach potential participants, we:

- Invite all summer research programs on campus to be listed as official supporters of and partners in SURI. The number of partner programs has grown to 25 (including the URO) in 2011, up from 16 in 2010. This increase is an indicator of the success of SURI and to the expansion of undergraduate research opportunities at Ohio State. Supporting programs shared their lists of summer undergraduate students and email addresses, allowing us to contact our target audience.
- Directly recruit undergraduates through our usual communication channels, such as the URO email listserv, Buckeye Net News, campus advisors, H&S Net, etc. A drawing for Barnes and Nobel gift certificates is used as an incentive to encourage self-registration in SURI.

**SURI Programming**

Summer programming emphasizes not only professional development opportunities but also social and sports activities. Attendance at events in summer 2011 was excellent, with most programs filled to capacity. Programs offered included the following, listed in the order of most to least attended:

- Kickoff Dinner and Ice Breaker Activities
- August Research Progress Celebration
- Weekly Brown Bag Lunches on the Oval
- Faculty Panel on Research
- Personal Statement Workshop
- Controversy in Research
- Poster Presentation Workshop
- Resume/Cover Letter Workshop
- How to Write a Research Abstract
- National Level Fellowships
The URO continues to partner with other offices across campus and gratefully acknowledges Career Connection, University Center for the Advancement of Teaching, Department of Psychology, Center for Emergent Materials, Undergraduate Fellowship Office and the Office of Responsible Research Practices for providing expertise and presenting many of the SURI professional development workshops, increasing cross-campus cooperation and awareness of undergraduate research on campus.

We continue to see a synergistic effect from SURI programming. SURI students were invited to attend a professional development workshop offered by one of SURI’s partner programs. The Center for Emergent Materials sponsored a program titled “What Can I do with a Ph.D.?” for its summer undergraduate researchers and invited interested SURI participants to attend. The URO invited Dr. Wayne Carlson, Vice Provost and Dean of Undergraduate Education to join students on the Oval at lunchtime to talk about his research and career.

Sports participation was more popular than ever with 142 (42%) of SURI students indicating an interest in getting involved in sports at the beginning of summer. The URO helped students establish an informal tennis tournament, one intramural soccer team, one intramural softball team, two intramural volleyball teams, weekly ultimate Frisbee games, a pairing for racquetball, and pickup basketball. Sports involvement continues to provide an excellent way for student researchers to balance their time doing research, manage stress, and to meet one another over the summer quarter. The following comments from students reinforce the significance of SURI sports activities:

I enjoyed the SURI summer sports because it gave me a chance to interact with students outside of an academic setting while having fun.

SURI Summer Softball was so much fun – I met so many cool people.

In addition to the above events, SURI participants received weekly emails from our student coordinator Ashley Bartman. These emails included program updates and advice in the form of a “topic of the week.” This year’s topics included: Adjusting to the Research Lifestyle, What your Mentor Can Do For You, The Rocky Road of Research, Faculty Words of Wisdom, Communicating Your Research, What You Say/What Your Grad Student Hears, Contributing to the Conversation, Fringe Benefits: Travel, and Building Your Network.

**SURI Assessment**

At the end of the Summer Quarter, we administered an exit survey, using Zoomerang, for student participants. Student surveys generated a 20% response rate (66 replies).

Students’ favorite SURI programs were the opening kickoff event, SURI summer sports, and the faculty panel on research. 42% reported that this was their first experience doing research; 9 out of 10 respondents were in their last two years at Ohio State. 77% reported conducting summer research in a lab; 69% intend to publish or present their summer research. 84% indicated that the emails they received from the URO were helpful; the survey results confirm that email is the main form of information for SURI students. Only 25% indicated that they checked the website the whole summer. 95% said they would recommend SURI to other students. As one student summed it up: “It is very informative and a fun way to meet people over the summer.”
PUBLICITY AND MARKETING

GOALS
As a campus-wide office, we strive to make our services known to all of the Ohio State community. We use a variety of digital and print, passive and active, methods to stay in touch with students, depending upon the target audience and the type of announcement. From the Office of Admissions, students begin hearing about undergraduate research while they are still in high school, and we aim to serve their needs throughout their undergraduate years. Likewise, we strive to reach new and established faculty members who may be interested in serving as research mentors and administrators who can collaborate with us to promote undergraduate research. We constantly seek new strategies for making our services available to a larger portion of the Ohio State community. Our main venues for publicity and marketing are described below.

URO WEBSITE
<http://undergraduateresearch.osu.edu>

The URO website serves as a comprehensive, centralized, one-stop location for finding out about undergraduate research in general and more specifically about opportunities for Ohio State students. There were more than 73,500 “hits” on our website in 2011 and more than 31,400 unique visits. We continue to receive queries from colleagues at other universities who also make use of our website. Informal feedback indicates that we have one of the most useful websites available for campus-wide undergraduate research offices.

The website is updated frequently to provide students at all stages of research involvement with resources and information. The more we learn about the undergraduate research population at Ohio State, the more we are able to modify and add to the website to meet their needs. Original information on the website developed four years ago covered introductory topics, such as what research is and how to find research opportunities at Ohio State. New sections have been added to facilitate specific tasks such as producing a research poster or writing a research proposal. We have added pages to feature new services, such as the Peer Research Contacts and the online form to help faculty members recruit student researchers. Other pages serve to publicize the accomplishments of student researchers, provide a link to facilitate donations, and link to JUROS and the Ohio State Beckman Scholars program.

In 2011 the URO website became the central source of information on thesis options. The URO was instrumental in the university’s introduction of a new research thesis option that complements the existing thesis option for Honors students (Appendix A). Thesis information is provided on the URO website.

Efforts to make the website more user-friendly are constantly considered and implemented when possible. The ability of the URO to update information within its own website has been central to the success of the office.

EMAIL LISTS AND TARGET GROUPS
Our students and faculty are responsive to email messages and several methods allow us to reach them.

Undergraduate Research Office Email Updates
More than 5,000 students have joined this list to receive weekly E-news, announcements about URO programs, related events, and research opportunities. Faculty members, staff, and academic advisors have also joined. 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.
As part of our evaluation of URO events, we ask attendees where they heard about the event; data from the past year showed that 69% heard through email—the primary source for finding out about our events.

Table 7. Sources of Information for event attendance

<table>
<thead>
<tr>
<th>Source</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-mail</td>
<td>62%</td>
<td>69%</td>
</tr>
<tr>
<td>Handout</td>
<td>10%</td>
<td>5%</td>
</tr>
<tr>
<td>Website</td>
<td>14%</td>
<td>12%</td>
</tr>
<tr>
<td>Friend</td>
<td>5%</td>
<td>6%</td>
</tr>
<tr>
<td>Advisor</td>
<td>2%</td>
<td>3%</td>
</tr>
<tr>
<td>Other</td>
<td>7%</td>
<td>5%</td>
</tr>
</tbody>
</table>

Similarly, 84% of SURI participants indicated that they found the emails helpful. One respondent summed it up as follows:

*The emails were very helpful. They were great deadline and event reminders.*

**Targeted Emails**

We use the university’s emailer system provided by the Office of the CIO to send emails to students based on college or department affiliation, class rank, Honors & Scholars affiliation, etc. This system allows us to inform targeted subsets of the student population about specific research opportunities, such as voluntary and paid internships with Ohio State faculty. There were 57 faculty requests for assistance in finding peer researchers. Many of those were repeat users of this method for recruiting undergraduate student researchers in 2011, and feedback from faculty who use this service is extremely positive.

*The announcements yielded a pretty impressive response rate. Thank you for your help.*

*Thank you very much for such (an) efficient process. Hard to find that these days :)*

**Facebook, Google Calendar and Twitter**

In December 2010, upon the advice of many students, including our Student Advisory Committee, we created a Facebook page. We currently post all of our events to the page, and post status updates to remind students about upcoming events. To find the URO on Facebook, search “Undergraduate Research Office at The Ohio State University.” A second Facebook page was created specifically for SURI participants’ use over the summer quarter. In summer 2011 the office also created a Google Calendar specifically for SURI and began to use Twitter (@OSU_URO). Our Twitter followers frequently retweet our tweets.

Social media complement and reinforce email and website communication offered by the URO, and provide a preferred option for some students. In particular, the Google Calendar has a small but ardent user group each summer. Tweets about students participating in the research exchange in São Paulo, Brazil, were retweeted by multiple Twitter users. 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.

**Quarterly Updates to the Faculty**

At the start of each Quarter, the URO Director sends an email newsletter to all Ohio State faculty, via their deans and department chairs, listing recent developments and programs that will be offered by 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 to reach them. Event evaluations showed that 3% of students reported that they heard about the particular event through their academic advisers, most of whom are not faculty members.

**Honors & Scholars Net 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 minority students on campus through the Office of Diversity and Inclusion.

**First Year Experience (FYE)**
This office advertises our events to first year students as appropriate.

**OTHER PUBLICITY AND MARKETING**

**Email and Web**

**BNN (Buckeye Net News)**
This weekly newsletter goes out to the entire Ohio State student population. We use it for general announcements.

**OSU Today**
We frequently announce events and application deadlines on the university’s daily email, which is sent to Ohio State faculty and staff.

**Ohio State Website Splash Page**
This website reaches the Ohio State community and beyond. Our events are often announced on this site. We have worked with Kristen Convery and Karen Patterson from University Communications and University Relations Offices on stories featuring student research projects from the Denman Forum, with links to the URO website. Undergraduate researchers were featured in stories about student summer experiences and outstanding graduating seniors.

**Paid advertising**

**The Lantern**
We announce the Distinguished Undergraduate Research Mentors in an annual spring advertisement in *The Lantern*.

**RPAC Table Tent Mini-posters**
These print materials announce highlights of URO programs. These are updated on a quarterly basis and displayed on all tables in the RPAC food courts.

**Printed materials**

**URO Brochure**
We print a short brochure on undergraduate research to distribute at events. Copies are mailed to applicants to Ohio State by the Office of Admissions.
**URO Poster**
We post a large green poster entitled “Why Research?” all over campus, to encourage students to learn more about opportunities at Ohio State. We also deliver copies of this poster to advising offices on the Columbus and the regional campuses.

**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 students are doing as independent researchers. 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. This booklet is also distributed to undergraduate research offices at CIC and other peer universities.

**Journal of Undergraduate Research at Ohio State**
See p. 19 for a full description of *JUROS*’ activities in 2011.

**Fliers**
We post quarterly program schedules, general information about getting involved in research, and flyers for special events all over campus at least once each quarter.

**Denman Forum Posters and Signage**
URO manages the printing and posting of Denman Forum advertisement, in collaboration with the Honors & Scholars Center.

**Fall Undergraduate Research Forum Abstract Booklet**
These abstracts are printed in an attractive booklet that is distributed at the forum and mailed to key academic leaders.
National Conferences and Publications

URO staff gave presentations at one national and two local professional meetings in 2011. Allison Snow is currently serving a three-year term as a Councilor in the division of Undergraduate Research Program Directors of the Council on Undergraduate Research, in which Ohio State holds an institutional membership.


- Leslie Tannenbaum (Associate Professor, Department of English) and Michael Bierschenk (URO) presented a poster entitled, “Service Learning with Digital Media” at the Innovate! Conference at The Ohio State University, Columbus, Ohio, April 2011.
The Journal of Undergraduate Research at The Ohio State University (JUROS)

juros.osu.edu

2010-2011 Editor-in-Chief: Olga Borodulin
2011-2012 Editor-in-Chief: Jennifer Kmetich

JUROS Editorial Board & Staff
Sean Craig, Jinwei Hu  Print Editors (Oculus Awards editions)
Dina Farah  Arts & Humanities Section Editor
Zachary Goodman  Science & Technology Section Editor
Rachel D’Amico  Social Science, Business & Education Section Editor
Olivia Chen  Features Editor
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Kevin Kulig  Review Manager
Alex Tranovich  Assistant Editor-in-Chief
Rashmi Borah  Assistant Editor-in-Chief
Kathryn Krulc  Treasurer

Manuscript Editors: 18 total
Manuscript Reviewers: 86 total

Faculty Editorial Board
Allison Snow  Evolution, Ecology, and Organismal Biology
Robert Cook  Anthropology
Lane Wallace  Pharmacy
Dawn Delfin  Biomedical Sciences
Ozeas Costa  Earth Sciences (Mansfield Campus)

2011 SUMMARY
JUROS is the student-run Journal of Undergraduate Research at Ohio State; it is an online publication which reviews research manuscripts submitted from any area of study in a double-blind peer review process. After the review are completed, manuscripts are edited and published at juros.osu.edu. Through extensive collaboration with University Libraries, JUROS has been able to utilize an open source digital publication system, through which authors may submit manuscripts and reviewers can retrieve and resubmit reviewed articles. JUROS also publishes feature articles, videos, and podcasts.

In Spring Quarter, JUROS published JUROS: Oculus Award Edition 2010-2011, a print version of the online journal whose purpose was to showcase the journal's progress. The printed manuscripts and feature articles were chosen through an extensive selection process that demonstrated excellent quality of research and the best ability to communicate the results with the audience. All manuscript and feature article submissions are judged by a faculty and student review board. All Spring 2011 Oculus award-winners and feature articles can be viewed online at juros.osu.edu.
MAJOR MILESTONES IN 2011
The JUROS Editorial Board, in conjunction with the Undergraduate Research Office and Ohio State Libraries Knowledge Bank, was able to review, format, and publish JUROS: Oculus Award Edition 2010-2011. We distributed 300 copies.

JUROS 2010-2011 includes eight feature articles:

- Visualization of Pulsed Vortex Generator Jets
  by Kevin Disotell, Department of Aerospace Engineering

- Effect of Photoperiod and Acute Stress on Facilitative Glucose Transporter GLUT3 in Siberian Hamsters (Phodopus sungorus)
  by Andrew Grier, Department of Neuroscience

- Inorganic Fertilizer vs. Cattle Manure as Nitrogen Sources for Maize (Zea Mays L.) in Kakamega, Kenya
  by Melissa Herman, Department of Environment and Natural Resources

- Crystallization of a Bacterial Single Stranded Annealing DNA Repair Protein
  by Alburuj Rahman, Charles Bell, Jinwei Hu; Department of Radiation Medicine

- Determining the Prevalence of Bitter Tasters in a Sample of College Smokers
  by Ashley Marie Weber, Department of Nursing

- From Poe to Rimbaud: A Comparative View of Symbolist Poetry
  by William Pietrykowski, Department of English

- Effects of Marital Status on Material Conditions
  by Megan Hicks, Department of Sociology

- Visual Attention and the Dimensional Change Card Sort
  by Nicholas Minar, Department of Psychology

- Crisis Authority, the War on Terror and the Future of Constitutional Democracy
  by Michael Newell, Department of International Studies

- Education or Exotification?: A Reexamination of the Smithsonian Folklife Festival
  by Kelly J Schultz, Department of Anthropology, Folklore

The beginning of the 2011–2012 academic year marked the reinstitution of the JUROS Editorial Board. With the graduation of our seniors, the Editorial Board experienced some changes, including an adapted system of roles. We congratulate those who have moved on but we will greatly miss them, for these students were some of the most prominent driving forces in this organization. JUROS continues to recruit new undergraduate staff who are currently being trained.

A special thanks from the JUROS Editorial Board goes to all undergraduate authors whose work we have published, to the advisors who have guided the research, to the staff at the Undergraduate Research Office (including Dr. Allison Snow, Helene Cweren, and Michael Bierschenk), to the University Libraries (including Dr. Tschera Connell and Henry Griffy), and to our supportive reader audience, composed of faculty, staff, and students at Ohio State.
The Ohio State Beckman Scholars Program  
in Chemistry, Biochemistry, and Biomedical Science  
undergraduateresearch.osu.edu/beckman/  

SUMMARY  
Coordinator and University Contact Person: Dr. Allison Snow  
Funding agency: The Arnold and Mabel Beckman Foundation  
Funds received: $115,800 for six scholars, renewable after three years, plus $40,000 for two scholars in matching funds from participating departments ($5,000 each), the Office of Research ($15,000), and the Office of Undergraduate Education ($10,000)  
Duration: August 1, 2009–September 1, 2012; renewal proposal submitted for 2012-2015  

The Ohio State University was one of nine universities to receive a grant in 2009 from the Arnold and Mabel Beckman Foundation. The grant supports two undergraduate student researchers at Ohio State each year who are designated as Beckman Scholars. Each Beckman Scholar receives a scholarship of $16,000 for conducting independent research with one of 15 faculty members in one of two academic units: Chemistry and Biochemistry or Biomedical Science. Our office has submitted a renewal proposal for 2012 and a decision will be made in Spring of 2012. With the outstanding accomplishments of our previous Beckman Scholars and the recognition Ohio State has received in terms of research expenditures, especially among public universities, we are confident that we are an excellent candidate for a Beckman grant renewal for 2012–2015.

Ohio State Beckman Scholars design their own research projects, present at national meetings, and compete for graduate fellowships. In addition to the six scholars funded by the Foundation, matching funds from Ohio State support two scholars during the three-year award cycle. Beckman Scholars are selected by a Faculty Advisory Committee on the basis of academic credentials, communication skills, maturity, and the motivation to pursue science-related careers and professions. The Beckman Program involves full-time research during two summers and part-time research during the intervening academic year. The scholars present their research at Ohio State’s Denman Undergraduate Research Forum and at the annual Beckman Scholars Research Forum in Irvine, California. Enrichment activities include programming for professional development and personal mentoring from faculty, graduate students, and administrative staff. Ohio State Beckman Scholars are able to take advantage of far-reaching professional opportunities as part of a tightly connected community. We expect our Beckman Scholars Program to produce future leaders and stimulate greater participation in rewarding research experiences for students in the STEM fields.

2011 Beckman Faculty Advisory Committee

Allison A. Snow  URO Director and Chair  
Tatiana M. Oberszyn  Biomedical Sciences  
Donald H. Dean  Biochemistry  
Christopher M. Hadad  Chemistry  
Karin M. Musier-Forsyth  Chemistry
Michael B. Wolfe  
Major: Biomedical Engineering  
Mentor: Dr. Jane Jackman, Department of Biochemistry  
Project: The molecular mechanism of unique 3’-5’ addition reactions catalyzed by Thg1

Samantha A. King  
Major: Chemistry  
Mentor: Dr. Jonathan Parquette, Department of Chemistry  
Project: Self-assembled nanotubes for cancer imaging and targeted drug delivery
2010 BECKMAN SCHOLARS

**Raj Chimanji**
Major: Biology
Faculty Research Advisor: Jill Rafael-Fortney, Department of Molecular and Cellular Biochemistry, School of Biomedical Science, College of Medicine
Project: Identification of new treatment strategies for Duchenne Muscular Dystrophy models exhibiting cardiomyopathy

**Presentations and Publications:**
Rafael-Fortney, JA; Chimanji, NS, Schill, KE; Martin, CD; Murray, JD; Ganguly, R; Stangland, JE; Tran, T; Xu, Y; Canan, BD; Mays, TA; Delfin, DA; Janssen, PML; Raman, SV. 2011. Early Treatment with Lisinopril and Spironolactone Preserves Cardiac and Skeletal Muscle in Duchenne Muscular Dystrophy Mice. Circulation 124/5: 581-588.
Poster—September 2010. Annual URO Autumn Research Forum, Columbus, Ohio.
Poster—May 2010. Acute and Chronic PM2.5 Induced Inflammatory Response Model. Denman Undergraduate Research Forum, Columbus, Ohio.

**Awards:**
Ohio State University Medalist Scholarship—Maximus Competition
Ohio State University National Merit Distinguished Student Scholarship
Ohio State University Mayers Chemistry Scholarship

**Ranjit Ganguly**
Major: Biology
Faculty Research Advisor: Jill Rafael-Fortney, Department of Molecular and Cellular Biochemistry, School of Biomedical Science, College of Medicine
Project: Defining the molecular mechanism of the skeletal muscle fiber-type switch in a mouse model of Duchenne muscular dystrophy

**Presentations and Publications:**
Rafael-Fortney, JA; Chimanji, NS, Schill, KE; Martin, CD; Murray, JD; Ganguly, R; Stangland, JE; Tran, T; Xu, Y; Canan, BD; Mays, TA; Delfin, DA; Janssen, PML; Raman, SV. 2011. Early Treatment with Lisinopril and Spironolactone Preserves Cardiac and Skeletal Muscle in Duchenne Muscular Dystrophy Mice. Circulation 124/5: 581-588
Poster—May 2011. Denman Undergraduate Research Forum, Columbus, Ohio.

**Awards:**
Office of Minority Affairs Morill Excellence Scholarship
Undergraduate Arts and Sciences Research Scholarship 2009-2010
National Merit Scholar
Nicholas Jarjour
Major: Biology
Faculty Research Advisor: Jill Rafael-Fortney, Department of Molecular and Cellular Biochemistry, School of Biomedical Science, College of Medicine
Project: Identification of new treatment strategies for Duchenne Muscular Dystrophy models exhibiting cardiomyopathy

Presentations:

Honors
Member of Ohio State Honors Collegium
Phi Kappa Phi Honor Society
2009 BECKMAN SCHOLARS

Philip Bunting
Major: Chemistry
Faculty Research Advisor: Malcolm Chisholm, Department of Chemistry, Division of Natural and Mathematical Sciences, College of Arts and Sciences
Project: A new MM quadruply bonded unit for use as a novel bridging ligand for supramolecular chemistry.

Presentations and Publications:

Awards:
Mayers Summer Research Scholarship 2011
Goldwater Scholarship Honorable Mention 2011
**Ian Green**

Major: Microbiology  
Early admissions program at OSU Medical School  
Faculty Research Advisor: Gustavo Leone, Department of Virology, Immunology, and Medical Genetics, School of Biomedical Sciences, College of Medicine  
Project: Phenotypic characterization of trophoblast giant cell specific Cre knock-in mouse lines

**Presentations:**
Poster—May 2010. Investigation into the Regulation of the Mammalian Endocycle. College of NMS Undergraduate Research Forum, Columbus, Ohio.  
Poster—May 2010. Investigation into the Regulation of the Mammalian Endocycle. 15th Annual Denman Undergraduate Research Forum, Columbus, Ohio.  
Poster—July 2010. Investigation into the Regulation of the Mammalian Endocycle. 12th Annual Beckman Scholars Symposium, Irvine, California.

**Awards:**
2010 OSU President’s Salute to Undergraduate Achievement Recipient  
2010 Arts and Sciences Certificate for Excellence in Scholarship  
Phi Kappa Phi  
Honors Collegium Member

---

**Emily Wong**

Major: Microbiology  
Faculty Research Advisor: Venkat Gopalan, Department of Biochemistry, Division of Natural and Mathematical Sciences, College of Arts and Sciences  
Project: Evaluating the promise of Methanobrevibacter smithii RNase P as a possible anti-obesity target

**Presentations:**
Poster—October 2009. Methanobrevibacter smithii RNase P - a model for archaeal mesophilic type A RNase P and a possible anti-obesity target. Ohio State Fall Undergraduate Research Forum, Columbus, Ohio.  
Poster—May 2010. Methanobrevibacter smithii RNase P - a model for archaeal mesophilic type A RNase P and a possible anti-obesity target. 15th Annual Denman Undergraduate Research Forum, Columbus, Ohio.  

**Awards:**
NSF Graduate Research Fellowship 2010-2011  
2010 Pelotonia Undergraduate Research Award for Cancer Research  
2010 Sigma Xi Associate Member (elected)
Development Funds

CURRENT USE FUND

*The Office of Undergraduate Research Fund (Fund 312045)*

Proceeds from this current use fund support grants and fellowships for students. University employees can request tax-deductible monthly paycheck contributions be made to URO Research Fund via the Campus Campaign for giving ([campuscampaign.osu.edu](http://campuscampaign.osu.edu)). One-time contributions can also be made directly via: [https://www.giveto.osu.edu/igive](https://www.giveto.osu.edu/igive).

ENDOWED FUNDS

*Karen A. Holbrook Fund (Fund 663339—current value of $202,817)*

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: [https://www.giveto.osu.edu/igive](https://www.giveto.osu.edu/igive).

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. Two awards were given in 2011:

- **David Garman** (German/International Business, fourth year)
  Project Title: Defining ‘Homosexuality’: Magnus Hirschfeld’s ‘sexual science’ and Robert Musil’s erotic ‘confusions’
  Advisor: May Mergenthaler, German

- **Dustin Homan** (Agricultural Education, fourth year)
  Project Title: Fighting Global Hunger: Developing Agroforestry Education Techniques
  Advisor: Robert Birkenholz, Human and Community Resource Development

Previous recipients: Marc Coons (2008), Justin Hanson (2010), Viral Patel (2010)
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. The 2011–12 student recipients of the SOLAR Foundation Research Grants ($500–1,000), their project titles, and their faculty mentors are:

**Andrew Curtright** (Microbiology and Pharmaceutical Sciences)
Project Title: In Vitro Selection of RNA Apatamers that Bind Human Lysyl-tRNA Synthetase Protein
Advisor: Dr. Karin Musier-Forsyth, Dept. of Chemistry and Biochemistry

**Sanandan Malhotra** (Molecular Genetics)
Project Title: Deducing the Essentiality of Putative Apicoplast Deubiquitinating Proteases: the OUT-like Cysteine Protease PF10_0308 in *P. falciparum*
Advisor: Dr. Mark E. Drew, Department of Microbial Infection and Immunity

**Anastasia Purgianto** (Food Science)
Project Title: Attachment, Internalization, and Dissemination of Human Norovirus in Leafy Greens
Advisor: Dr. Jianrong Li, Dept. of Food Science and Technology

**Ronald Siebenaler** (Biomedical Science)
Project Title: Personalized Medicine in Acute Myeloid Leukemia: Targeting AML with Epigenetic Modified and Tyrosine Kinase Inhibitors
Project Advisor: Dr. Michael Caligiuri, Comprehensive Cancer Center
Appendix A

Creation of the Thesis Option

BACKGROUND:
The Undergraduate Research Office and the University Honors Program proposed in 2009 to the Office of Academic Affairs revisions to the Faculty Rules in order to clarify and to standardize rules for writing a thesis at The Ohio State University. This proposal supported the notion that any student, whether enrolled in Honors or not, who is intellectually capable of writing a thesis, who finds a faculty member willing to advise the research project, and who successfully defends the thesis, be permitted to do so, and as a result receive recognition at graduation. Honors and non-Honors theses may differ in a number of ways, including breadth, depth, and length.

RESULTS:
On January 13, 2011, the University Senate approved a change to the rules for standards for honors at graduation as proposed by the URO. The new rule is:

3335-9-33C. Standards for graduation "with research distinction in [special subject(s)]," “with honors research distinction in [ ],” and "with honors in [ ]" shall be as adopted by the council on academic affairs. Eligibility for these honors shall be based on a minimum of ninety credit hours of course enrollment at this university. The marks for all Ohio state coursework considered toward the degree will be included in calculating a student’s eligibility for such honors. Credits in courses graded “S/U” and credits earned in repeatable coursework will be considered as counting toward the ninety credit hours. Credits in courses graded “PA/NP” and credits earned in coursework repeated in rule 3335-8-28 of the Administrative Code will not be considered as counting toward the ninety credit hours.

On February 11, 2011, the Board of Trustees amended the Faculty Rules to allow students with a GPA of 3.0 or higher to complete a research thesis and to graduate “with research distinction” by following new, university-wide requirements. Honors students who complete a thesis by meeting already-existing requirements will graduate “with Honors research distinction” on the transcript instead of the former term, “with distinction.” College and department offices have begun working to implement the new requirements. University requirements for theses are summarized in Table A1.
Table A1. University requirements for regular and Honors research theses

<table>
<thead>
<tr>
<th></th>
<th>Regular thesis in ALL COLLEGES (as of Spring 2011)</th>
<th>Honors thesis in ARTS &amp; SCIENCES¹</th>
<th>Honors thesis in ENGINEERING¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min. GPA at graduation</td>
<td>3.0</td>
<td>3.4</td>
<td>3.4</td>
</tr>
<tr>
<td>Min. GPA in major</td>
<td>Not Specified</td>
<td>Not specified²</td>
<td>Not specified</td>
</tr>
<tr>
<td>OSU faculty research project</td>
<td>Regular faculty (includes tenure-track, research, and clinical) or Auxiliary Faculty involved in research³</td>
<td>Tenure-track faculty</td>
<td>Tenure-track faculty</td>
</tr>
<tr>
<td>advisor &amp; Exam committee member #1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exam committee member #2</td>
<td>Regular faculty (includes tenure-track, research and clinical); also Auxiliary Faculty involved in research³</td>
<td>Regular faculty (includes tenure-track, research, and clinical); also Auxiliary Faculty involved in research³</td>
<td>Tenure-track faculty</td>
</tr>
<tr>
<td>Exam committee member #3</td>
<td>None</td>
<td>Tenure-track faculty from another department</td>
<td>None</td>
</tr>
<tr>
<td>Oral exam</td>
<td>1 hour</td>
<td>1 hour</td>
<td>1 hour</td>
</tr>
<tr>
<td>Written thesis</td>
<td>Format set by departments</td>
<td>Format set by departments</td>
<td>Format set by departments</td>
</tr>
<tr>
<td>Thesis course credits for quarters⁴</td>
<td>At least 6 credits of research thesis courses; use 783H until Summer 2012.</td>
<td>At least 6 credits of research thesis courses (783H)</td>
<td>At least 6 credits of research thesis courses (783H).</td>
</tr>
<tr>
<td>Thesis course credits for</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>semesters (Summer 2012)⁴</td>
<td>At least 4 credits; course numbers 4999 (or 3999).</td>
<td>At least 4 credits; course numbers 4999H (or 3999H).</td>
<td>At least 4 credits; course numbers 4999H (or 3999H).</td>
</tr>
<tr>
<td>Number of graded OSU hours</td>
<td>At least 90 hours (60 hours with semesters)</td>
<td>At least 90 hours (60 hours with semesters)</td>
<td>At least 90 hours (60 hours with semesters)</td>
</tr>
</tbody>
</table>

¹Not including Mathematics, which has different requirements. Requirements for other colleges are not listed here.
²GPA in major – Only a few ASC departments specify a minimum GPA in the major. These are 3.5 in Anthropology, Philosophy, and Political Science; and 3.6 in English. Some departments are considering dropping this requirement.
³At least one of the two committee members must be a tenure-track faculty member. For definitions of other faculty appointments, see <http://trustees.osu.edu/rules5/ru5-19.php>
⁴Some departments have additional course requirements for Honors theses.
Appendix B
Undergraduate Research Offices at Benchmark & 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 benchmark and the CIC universities showed that 9 out of the 16 (56%) have a central, university-wide office. In contrast, 100% have some kind of university-wide forum or symposium to celebrate and showcase undergraduate research accomplishments. It is clear to us that maintaining and growing a university-wide forum for undergraduate research is essential to maintaining our standing as a leading research institution.

BENCHMARK UNIVERSITIES
1. Pennsylvania State University 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. <http://undergradresearch.psu.edu/>

2. The University of Arizona has 28 undergraduate research programs through the College of Science, including a Beckman Scholars Program (in biochemistry & chemistry). 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. <http://ur.arizona.edu>

3. The University of California at Los Angeles has Research Centers for undergraduate research in Life & Physical Sciences and in Humanities and 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. <www.ugeducation.ucla.edu/ugresearch/>, www.gdnet.ucla.edu/asis/srp/srpinfo.htm>

4. 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 and a Beckman Scholars Program. Students can publish in a campus-wide Journal of Undergraduate Research. <http://www.honors.ufl.edu/research.html>, <http://www.clas.ufl.edu/jur/>

5. The University of Illinois at Urbana-Champaign sponsors an annual research symposium for undergraduates. The Office of the Provost had a committee titled Working Group on Undergraduate Research listed on its website in 2009, but the committee appears no longer to be active. http://provost.illinois.edu/committees/ugresearch.html, <http://provost.illinois.edu/~icru/>

6. The University of Maryland has an office devoted to undergraduate research which offers seminars about ethical research practices, 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. <http://ugresearch.umd.edu>
7. The University of Michigan has a program for 1st and 2nd year students with a website, staff, alumni organization, a large, multi-session spring symposium to showcase student research accomplishments, and several externally-funded summer programs. Michigan obtained NSF funding to establish and evaluate this highly effective, nationally known program. After the grant expired, the university has continued its support for this program with more than 1200 students and 700 faculty research mentors. Michigan does not yet have a campus-wide program that focuses on 3rd and 4th year students <http://www.lsa.umich.edu/urop/>.

8. The University of Minnesota has a central office that is open to all undergraduates. Students apply and are funded to do research, and there is a campus-wide forum. <http://www.research.umn.edu/undergraduate/>

9. 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 the 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.<http://Washington.edu/research/urp/>

10. The University of Wisconsin-Madison supports an Undergraduate Research Scholars Program for 1st and 2nd year students in all disciplines. They sponsor an Undergraduate Symposium for students in all disciplines, with several hundred participants. The forum includes students in the Research Scholar Program, the McNair Scholars Program, Hilldale/Holstrom Fellowship recipients, and the Wisconsin Idea Fellowship recipients. <http://www.lssaa.wisc.edu/hrs/general/intro.html>, <http://www.learning.wisc.edu/>

**CIC INSTITUTIONS**

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 projects, 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 has a statewide undergraduate research conference.

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.

Purdue University 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.

University of Iowa has a university-wide website, three campus-wide “research festivals,” and an office at the Iowa Center for Research by Undergraduates (ICRU). The office is situated in the Honors Center.

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 and research forums at benchmark and CIC universities

<table>
<thead>
<tr>
<th>Institution</th>
<th>Dedicated, Undergraduate research office</th>
<th>University-wide forum</th>
<th>Recent size of forum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indiana University—Bloomington</td>
<td>Yes</td>
<td>Yes</td>
<td>129</td>
</tr>
<tr>
<td>Michigan State University</td>
<td>Yes</td>
<td>Yes</td>
<td>520</td>
</tr>
<tr>
<td>Ohio State University</td>
<td>Yes</td>
<td>Yes</td>
<td>580</td>
</tr>
<tr>
<td>Pennsylvania State University(^1)</td>
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<td>Yes</td>
<td>unknown</td>
</tr>
<tr>
<td>Purdue University</td>
<td>No</td>
<td>Yes</td>
<td>unknown</td>
</tr>
<tr>
<td>University of Arizona(^1)</td>
<td>Yes</td>
<td>Yes</td>
<td>&lt;100</td>
</tr>
<tr>
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<td>Yes</td>
<td>353</td>
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<tr>
<td>University of Florida(^1)</td>
<td>Yes</td>
<td>Yes</td>
<td>unknown</td>
</tr>
<tr>
<td>University of Illinois, Champaign-Urbana(^1)</td>
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<td>Yes</td>
<td>285</td>
</tr>
<tr>
<td>University of Iowa</td>
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<td>174</td>
</tr>
<tr>
<td>University of Maryland(^1)</td>
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<td>Yes</td>
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<tr>
<td>University of Minnesota(^1)</td>
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<td>University of Nebraska</td>
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<td>237</td>
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<tr>
<td>University of Washington(^1)</td>
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<tr>
<td>University of Wisconsin—Madison(^1)</td>
<td>No</td>
<td>Yes</td>
<td>552</td>
</tr>
</tbody>
</table>

\(^1\) Ohio State’s benchmark universities as designated by the Office of Academic Affairs.
Appendix C

URO Summer Research Fellows

The URO provides fellowships for undergraduate students who are pursuing research full-time during Summer Quarter under the supervision of an Ohio State faculty member. In 2008, the URO Faculty Advisory Committee selected 13 students to receive fellowships; in 2009, we were able to increase our support to 16; in 2010 we sponsored 17 students (including two students supported through the Holbrook Fund, and two others funded by the Department of Psychology); and in 2011 we had 25 fellows. The 2011 fellows included two students supported through the Holbrook Fund, two students funded by the Department of Evolution, Ecology, and Organismal Biology, and eight students funded by the Department of Psychology. Each fellow received a $3,500 stipend for 10 weeks of work on their respective research projects and participated in the URO’s Summer Undergraduate Research Institute. The fellows presented their findings at the annual Fall Research Poster Forum.

The URO wishes to thank the Office of Undergraduate Education, the Office of Research, the Department of Psychology, 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. Many thanks are also due to the staff in the Office of Student Financial Aid, especially Brad Roll, for their help in disbursing funds to these and other award winners.

COMMETS FROM 2011 FELLOWS

The responses from our 2011 Fellows, like those of previous years, have been overwhelmingly positive. This year’s students echoed prior recipients in reporting that a paid fellowship made their research possible:

None of this would have been possible if it weren’t for the amazing opportunity granted to me by the URO to participate in their Summer Research Fellowship program. The grant I received allowed me to devote the time needed to successfully re-run my experiment and thus significantly improve the quality of my findings.

Katie Sasso, Psychology

With URO funding from Ohio State, I have been able to acquire a meaningful professional experience with hands-on research that will be significant in many future professional endeavors.

David Garman, German Language, Literature, and Culture

Had I not received this fellowship, I would have spent this past summer either taking classes or working part-time somewhere with no relevance to my career path.

Christine Castillo, Exercise Science

For many students, research enhanced their undergraduate academic experience and furthered their understanding of the fundamentals of research:

The opportunity to research full time this summer allowed me the opportunity to experience every aspect of research—successes and failures—and to learn from each.... I realized the importance of the most basic scientific principles to even the most complex research.

Seva Khambadkone, Molecular Neuroscience

It has been extremely interesting and helpful to see how other people organize and conduct their research, and I have been able to incorporate some of their ideas into my own work.

Rachel Soltys, Animal Sciences
The most important thing I have learned is that there is so much more to learn about my field. Each answered question opens up new avenues of research that leads to an innumerable amount of questions still left to be answered.
Jonte Jones, Psychology

Before doing summer research, I learned some research skills in a Research Methods class. But what I had learned were just theories and concepts from the textbook. Doing my own summer research, which combined textbook knowledge with practice, I acquired real research skills.
Xuyan Zhao, School of Communication

This research opportunity has shown me a valuable collaborative relationship between mathematics (until recently one of my two majors) and anthropology… It is immensely gratifying to see a way in which mathematics itself and especially mathematical reasoning skills can apply to inquiry in my field.
Grant Joslin, Anthropology

Another thing I’ve learned from this project is just how much effort goes into fieldwork and data collection.
Kristin Schafer, Biology

Students also found that research proved the opportunity for personal growth:
This summer exposed me to the realities of true research; it is messy and unpredictable. Problem solving is a skill I developed this summer, along with patience.
Alexis Wagner, Psychology

I learned how to network and how to conduct myself in unknown circumstances. I learned how to work with people that have different attitudes and personalities than I do. I learned the importance of following through with commitments.
Derek Howell, Animal Sciences

My work ethic and time-management skills increased tenfold. I learned the importance of self-created deadlines, goals, and task lists, for the sake of doing the best job possible rather than because someone told me to.
Rachel Weiskittle, Psychology

It is exciting that I have the chance to apply the knowledge I acquired doing research here in the United States to a real-life problem in my own country. After studying [here], I feel that I have a new perspective on China.
Zhen Ye, Economics

Research affirmed students’ career goals and prepared them for the future:
After spending a summer in this lab I am confident that I can accomplish great things...
Sam Stuard, Engineering Physics

What I experienced in the summer is like a preview of my future research life.
Rui Cao, Psychology

This project is going well... and there are numerous options for future directions with this project.
Emily Cason, Biomedical Science
2011 URO SUMMER FELLOWS

**Emily Cason**
Major: Biomedical Science  
Research Project: Investigation of Novel Curcumin Analogs as Antimalarials  
Advisor: Mark Drew (Infectious Diseases)

**Christine Castillo**
Major: Exercise Science  
Research Project: Kinect with Fitness  
Advisor: Carmen Swain (Physical Activity and Educational Services)

**Derek Howell**
Major: Animal Sciences  
Research Project: Determining the Effects of Lactoferrin on Sperm Survival and Function In Vitro  
Advisor: Marco Coutinho da Silva (Veterinary Medicine)

**Grant Joslin**
Majors: Anthropology, Mathematics  
Research Project: A GIS-Based Site Catchment Analysis of the Anderson Village and SunWatch Village Sites in Southwest Ohio  
Advisor: Robert Cook (Anthropology)

**Seva Khambadkone**
Major: Molecular Neuroscience  
Research Project: Alpha 7 Nicotinic Receptor Mediation of Prefrontal Glutamate Release: Relevance to Schizophrenia  
Advisor: John Bruno (Psychology)
2011 URO SUMMER FELLOWS, CONTINUED

Kyle Olson
Majors: Anthropology, Near Eastern Languages and Cultures
Research Title: The Figurines of Tureng Tepe: A Morphological, Stylistic and Contextual Analysis
Advisor: Joy McCorriston (Anthropology)

Katie Sasso
Major: Psychology
Research Project: Prediction of Therapeutic Process and Outcome: Examining Thin Slice Ratings of Clients' Intake Evaluations
Advisor: Daniel Strunk (Clinical Psychology)

Rachel Soltys
Major: Animal Sciences
Research Project: Comparative Toxicity of Cryoprotectants on Staphylococcus aureus at Room Temperature
Advisor: Armando Hoet (Veterinary Medicine)

Samuel Stuard
Major: Engineering Physics
Research Project: Development and Control of Micro-Reactors
Advisor: Ratnasingham Sooryakumar (Physics)

Joshua Vidmar
Major: Geography
Research Project: The Impact of Climate Change on Pleistocene Megafauna in the Western United States
Advisor: David Porinchu (Geography)
Zheng Ye
Majors: Economics, Mathematics
Research Project: Development Dissimilarities among Similar Coastal Cities in China
Advisor: Belton Fleisher (Economics)

Xuyan Zhao
Major: Communication
Research Project: The Decisive Moments in Emotional Political Message Processing: A Psychophysiological Examination of the Peak-and-End Rule, Political Attitudes and Perceived Persuasion
Advisor: Zheng Joyce Wang (Communication)

2011 URO PSYCHOLOGY SUMMER FELLOWS

Joseph Doherty
Major: Psychology
Research Project: Increasing Access to Mental Health Treatment in Primary Care: A Moderating Effect of Age
Advisor: Jennifer Cheavens (Psychology)

Megan French
Major: Psychology
Research Project: Facebook's Effects on Contingencies of Self-Worth
Advisor: Jennifer Crocker (Psychology)

Rui Cao
Majors: Actuarial Science, Psychology
Research Project: The Word Frequency and List Length Effect on the First Word Recalled
Advisor: Simon Dennis (Cognitive Psychology)
2011 URO PSYCHOLOGY SUMMER FELLOWS, CONTINUED

**Jonte Jones**
Major: Psychology  
Research Project: The Effects of D-cycloserine on the Learning and Memory Dysfunctions of FAS Rats  
Advisor: Derick Lindquist (Behavioral Neuroscience)

**Kimberly Rolley**
Major: Psychology, Neuroscience  
Research Project: Examining Executive Functioning and Neural Plasticity in Individual with Multiple Sclerosis  
Advisor: Ruchika Prakash (Psychology)

**Nicholas Shaffer**
Major: Psychology  
Research Project: The Relevance of Alpha-7 Mediation on Cognition in Schizophrenia  
Advisor: John Bruno (Psychology)

**Alexis Wagner**
Major: Psychology  
Research Project: Children’s Acquisition of Linguistic Register  
Advisor: Laura Wagner (Psychology)

**Rachel Weiskittle**
Major: Psychology  
Research Project: Relationship Between Depression and End of Life Experiences for Family Members who have Experienced a Death in the Hospital  
Advisor: Sharla Wells-Di Gregorio (Psychiatry)
2011 EVOLUTION, ECOLOGY, AND ORGANISMAL BIOLOGY URO FELLOWS

**Jacob Sawmiller**
Major: Biology  
Research Project: Effect of Habitat Type on Parental Care in House Wrens (*Troglodytes aedon*)  
Advisor: Jacqueline Augustine (Evolution, Ecology & Organismal Biology)

![Jacob Sawmiller](image1.jpg)

**Kristin Schafer**
Major: Biology  
Research Project: Seasonal Variation in the Song of Male House Wrens (*Troglodytes aedon*)  
Advisor: Jacqueline Augustine (Evolution, Ecology & Organismal Biology)

![Kristin Schafer](image2.jpg)

2011 HOLBROOK FELLOWS

**David Garman**
Majors: German, International Business  
Research Project: Defining 'Homosexuality': Magnus Hirschfeld's 'sexual science' and Robert Musil's erotic 'confusions'  
Advisor: May Mergenthaler (Germanic Languages and Literatures)

![David Garman](image3.jpg)

**Dustin Homan**
Major: Agricultural and Extension Education  
Research Project: Fighting Global Hunger: Developing and Identifying Effective Education Strategies to Disseminate Agroforestry Knowledge to Kenyan Youth  
Advisor: Robert Birkenholz (Human and Community Resource Development)

![Dustin Homan](image4.jpg)
PAST RECIPIENTS OF SUMMER UNDERGRADUATE RESEARCH FELLOWSHIPS:

SUMMER 2010
Alisa Baron—Spanish
Ashley Bartman—Chemistry, History of Art
Shirley Li—Physics
Elan Leiber—Exercise Science
Lily Liu—Biomedical Science
Nathan McCullough—Sociology, Strategic Communications
Robert Nichols—Psychology
Danielle Rickert—Psychology
Justin Schulze—International Studies (Development), Economics
Mackenzie Schumer—Neuroscience
Suzanne Tabbaa—Biomedical Engineering
Hok Hei Tam—Chemical Engineering, Mathematics
Dan White—Jazz Studies, Music Education
Justin Hanson—English
Viral Patel—Economics, Microbiology
Micah Goldfarb—Psychology
Suzanne Van Horn—Psychology, English

SUMMER 2009:
Andrew Campbell—Biology, International Studies
Jake Connors—Physics
Danielle Rickert—Fine Art, Philosophy
Kevin Gabbard—Linguistics
Ravi Gupta—Political Science, Molecular Genetics
Carla Justiniano—Molecular Genetics
Ellen Manovich—History, English
Hudson McFann—Geography
Margaret Mehling—Psychology
Jessica Modlich—Mechanical Engineering
Scott Moreland—Physics, Mathematics
Jeremiah Santos—Electrical & Computer Engineering
Surili Sheth—Political Science, Economics
Adrienne Strong—Biomedical Science, French
Gregory Webb—English
Kevin Yang—Chemical & Biomolecular Engineering, Piano Performance

SUMMER 2008:
Gina Aloisio—Biomedical Sciences, Spanish
Kevin Bowen—Accounting
Allison Buenger—Fine Arts
Jennifer Chao—Biomedical Sciences
Katherine Clonan—Roy Spanish, Psychology
Marc Coons—Chemistry
Kevin Giriunas—Civil Engineering
John Pate—Linguistics
Teresa Pratt—Linguistics
Andrew Rigney—Political Science, History
Caroline Sim—European Studies, English, French
Diane Smith—Microbiology, Spanish
Stephen Smith—Biomedical Science
Appendix D
Recipients of Undergraduate Research Mentor Awards

2011 AWARD WINNERS
The URO Student Advisory Committee selected the winners for Distinguished Undergraduate Research Mentor (for regular tenure-track faculty) and new this year, for Outstanding Research Mentor (for research & clinical faculty, auxiliary faculty, postdoctoral researchers, and graduate students) from 58 nominations made by presenters at the 2011 Denman Undergraduate Research Forum. Sample quotes from student nominations are included to illustrate the value of these mentor-student collaborations.

DISTINGUISHED UNDERGRADUATE RESEARCH MENTORS:

Dr. Bryan Mark—Geography

It became overwhelmingly obvious that Dr. Mark truly cared about me on a personal level as well as being invested in my professional development. He has always said that he only hopes that I can have a meaningful research experience. I think this is incredibly admirable, as he invested a lot of time into advising me even though he knew I wouldn’t follow in his footsteps. I consider myself lucky every day that I have had the opportunity to know Dr. Mark, as he has played such an influential role in my life.

Dr. Manuel Martinez—English

Through his instruction, guidance, and mentorship, Manny Martinez has altered the course of my education, my career, and my life. A gifted writer, active teacher, and caring individual, Manny defies the stereotype of the research-obsessed professor. Manny’s dedication to his students, his integrity as an instructor, and his insight as a mentor make him not only an asset to Ohio State, but an extraordinary human being.

Dr. Donna McCarthy—Nursing

Dr. McCarthy advocates for undergraduate research by fostering other undergraduates as well as nursing graduate and PhD students. Dr. McCarthy has helped another member of our lab team with a molecular genetics degree in acceptance to a graduate program in neo-natal nursing. She works with adults and non-traditional students returning to school in the Nursing PhD program and even mentors local high school students interested in pursuing science degrees in college. Dr. McCarthy truly embodies the caring and generous nature of nursing combined with precise attention to detail and cutting edge laboratory research.

Dr. Qinghua Sun—Public Health

I strongly believe that Dr. Sun has gone far beyond what can be expected for a research mentor. Conducting research under his direction has been a life changing experience for me. He has given me many opportunities that I would have been hard-pressed to find from other principal investigators. However, he has not only helped me, he has helped many other undergraduates also. Dr. Sun strongly advocates for undergraduate research by making research opportunities available. There are several undergraduates who have worked in the lab during the last two years, and from our interactions, I know they have all experienced significant growth in our lives.

Dr. Jessica Winter—Biomolecular and Chemical Engineering

Her greatest asset is her ability to develop and envision projects for undergraduates, and provide them with the tools and guidance necessary to complete them. She meets with each of her students weekly to provide them with guidance and answer any questions they might have. Furthermore, she treats her undergraduates as graduate students, providing them with the same expectations, tools, insights, and personal advocacy.
OUTSTANDING RESEARCH MENTORS
The Outstanding Research Mentor Award was created by the Undergraduate Research Office in 2011 to recognize 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. Presenters at the Denman Undergraduate Research Forum are eligible to nominate an individual for the ORM Award and a student committee then reviews nominations and selects a winner.

Lisa Cravens-Brown—Psychology
Dr. Cravens-Brown does what great mentors do, provide a safe place for mentees to make mistakes, correct them and learn from the experience. By creating this space, I have been able to build my skills before going out into the world.

Véronique Lacombe—Pharmacy Practice & Administration
My undergraduate research experience, thanks to Dr. Lacombe, has been incredibly fulfilling... I know that I will always look back fondly on my time spent in the lab. I know Dr. Lacombe will continue to enrich the undergraduate experience for many more students over the coming years.
PAST RECIPIENTS OF DISTINGUISHED UNDERGRADUATE RESEARCH MENTOR AWARDS:

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-Steffensmeier—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 Baiocchi—Internal Medicine
Donald Dean—Biochemistry
John Grinstead—Spanish and Portuguese
Irfan Nooruddi—Political Science
Brian Winer—Physics
Appendix E
Priorities for Donors to URO

Website link for general donations to URO:
<http://undergraduateresearch.osu.edu/donate.html>

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

GRANTS AND AWARDS

- **Summer research experience** (10 weeks, full time; coordinate with colleges)
  - $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

- **Research and travel grants**
  - $500 per student x 100 students per year = $50,000 per year to cover research expenses
  - $1000 per student x 10 students = $10,000 per year for travel to conduct research or present completed research at forums
  - Possible name: Do Something Great Grants

- **Introduction to research targeting first- and second-year students**
  - two tracks: library research, or internship within a research group
  - student registers for independent study and receives 3–5 credits
  - mentors (faculty, librarians, other researchers) receive $500 per student to pay expenses and serve as an incentive
  - $500 per mentor x 100 students per year = $50,000 per year
  - Possible name: Early Research Opportunities Program

- **Mentoring awards for graduate students**
  - $500 award (advanced Ph.D. candidates only) for supervising an undergraduate student’s research project
  - $500 x 100 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 = $5,000 per year
  - Possible name: Donor’s Name Award for Outstanding Undergraduate Research Mentor

OTHER OPTIONS FOR GIVING:

1) Support for the Denman Undergraduate Research Forum each spring. Now in its 16th year, this forum serves as a showcase for more than 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, including key corporations and the founders, Mr. and Mrs. Richard Denman, is not guaranteed. With the Honors and Scholars Center, we are actively seeking additional support to be able to continue this tradition of excellence. Total cost: $125,000 per year.
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; name after donor.

3) Autumn 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 May, 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). Name after donor.

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.
   - Possible name: Friends of Undergraduate Research at Ohio State
   - Members will receive newsletters, invitations to URO events, and opportunities to meet student researchers.

6) New staff positions for two half-time graduate students and four part-time undergraduate students. The additional staff is needed to help with grant-writing, marketing, and communications. Estimated cost: $80,000 per year (each GRA plus fees is $35,000; $2,500 per undergraduate).

7) Permanent office space to house URO staff and serve as a source of information and counseling for students. (Our current space in Page Hall could become unavailable at any time.) Name after donor.