November 25, 2015

Office of Undergraduate Research (OUR-UT)
ANNUAL REPORT 2015

Due Date of Report: Fall Semester 2015


Project Title: Office of Undergraduate Research (OUR-UT)

Persons Completing Report:
- Thomas Kvale, Ph.D. (Director, OUR-UT and Prof. of Physics)
- Larry Connin, Ph.D. (Associate Director, OUR-UT and Administrative Coordinator, Honors College)
- Jennifer Lucius (Graduate Assistant, OUR-UT)

Summary Statement
OUR-UT will be celebrating its ten year anniversary in May 2016!! Since the launch of OUR-UT, it has grown from a small program of about ten students per summer to over fifty summer students and helping students throughout the academic year. OUR-UT is also in transition since its director, Thomas Kvale, retired in June 2015. Prof. Kvale came back in August to serve a one year extension as director to facilitate a smooth transition to the next OUR-UT director. Because of the state’s retirement rules, Associate Dean of the Honors College Steven Peseckis served as Acting Director during the summer 2015.

UT Journal of Undergraduate Research (UT-JUR). We have received three manuscripts and they have finished the review stage, with the first publication was expected early in the Spring semester 2015. However, the inaugural publication was delayed so we can have an ISSN number issued for it. This is important for it to be recognized as an archival journal. Details of the journal were included in last year’s Annual Report and are available for download from the OUR-UT website.

Other objectives of the OUR-UT in the upcoming year include: a Scholars’ Celebration: Undergraduate Research Showcase toward the end of Fall semester 2015; ten-year anniversary celebration in Spring semester 2016; continuous outreach to inform the undergraduate population of OUR-UT programs; develop an up-to-date and thorough data base of UT undergraduates involved in faculty-led research beyond the programs sponsored by OUR-UT; promote the creation of more research intensive courses across the university; support externally-funded research opportunities; grow OUR-UT programs (especially STARS and WSRP); and transition to a new director of Undergraduate Research by the end of Summer 2016.

Major Activities
Proposals/Grants (Additional Information is included in the Appendix)
- Choose Ohio First Scholarship Program: “Building Ohio’s Sustainable Energy Future” (TJK Co-Principal Investigator), OUR-UT to administer research positions/internships. 1.53MS OBOR


Undergraduate Research Programs (Details in Appendix)

- **AY2014-15 Research Programs:**
  - STARS participants (LaVelle Ridley)
  - AYRP participants (5 -- See Appendix for Details)
  - Travel Grants
    - 1 Research travel (Sierra Parker)
    - 4 Conference travel (See Appendix for Details)

- **Summer 2015 Research Programs:**
  - Selection committees met, March 2015. Summer 2015 research Proposals reviewed: FYSRE (16 proposals), Toledo Internship (8 applications), USRCAP (40 proposals). FYSRE and USRCAP selection committees rated the proposals on a scale of 1-5, with 5 being outstanding. They were instructed to identify at most six FYSRE and six USRCAP proposals with a rating of 5 and at most six FYSRE and eight USRCAP proposals with a rating of 4. There were no limits on the number of proposals that could be rated 1-3.
    - FSYRE (10 participants/ 16 proposals)
      - Total FYSRE Average Proposal Score: 4.2/5.0
      - Number of FYSRE proposals scored >3.75: 9/16
    - UT-City of Toledo Internship Program (6 participants/ 8 applications)
    - USRCAP (30 participants/ 40 proposals)
      - Total USRCAP Average Proposal Score: 4.0/5.0
      - Number of USRCAP proposals scored >3.75: 33/40
  - End-of-Summer Undergraduate Student Research Presentations, August 06, 2015.

Conferences (See Appendix for Details)

- **National Conference on Undergraduate Research (NCUR) 2015**
  - Event: 0. However, see Northwest Ohio Undergraduate Research Symposium 2015 for an alternative conference.

- **Inter-University Council: Day at the Statehouse**
  - Event: March 10, 2015. UT attendees: 3.

- **Northwest Ohio Undergraduate Research Symposium 2015**
  - Event: April 18, 2015, Host: Bowling Green State University.

- **UGR2980: Issues in Research and Scholarship** course, summer session III. Ave. attendance: 36.

- **Student Research Handbook AY2014-15** Published electronically. Paper copies available upon request from OUR-UT.

- **UT Presentations for undergraduate research opportunities:**
  - Social Work SOCW3410, October 07, 2014
  - Alpha Epsilon Delta, Pre-Med students, September 11, 2014
  - Charles Drew Society, September 11, 2014
  - First Year Pharmacy students, November 18, 2014
  - various individual class presentations.

- **Student Government Research Survey** (19 responses). Survey summaries included in the Appendix.

- **Proposal Writing Workshops** (all disciplines both presentations)
  - January 27, 2015, 4:00pm-6:00pm, Fieldhouse FH2030
  - January 28, 2015, 6:00pm-8:00pm, Fieldhouse FH2910

- **Office of Undergraduate Research Advisory Committee -- ACUR (AY2014-15)**
  - Please see Appendix for ACUR details
Major expenditures for the period
- Undergraduate Research Major Expenditures 2014-2015 (grand total: $166,526)
  - OUR-UT (TOTAL - summer stipends 2015): $156,000
    - FYSRE: $29,400
    - TolInterns: $18,000
    - USRCAP: $108,600
  - OUR-UT (summer supplies): $5,150
- AYRP grants AY2014-15: $1,300
- Travel Grants AY2014-15: $1,992
- STARS (LVR): $1,000
- Northwest Ohio Undergraduate Symposium for Research & Scholarship: $224
- CUR institutional membership: $860
- Publication of the AY2014-15 Student Research Handbook was electronic this year, so no direct printing costs were incurred.

Assessment activities

Development activities
- OUR-UT Development Plan is available from OUR-UT. No changes were made this year from last year.

Challenges or problems encountered this period (if any)
- Main challenges encountered:
  - The rules regarding the issuance of an ISSN number for the UT-Journal of Undergraduate Research requires at least five articles per publication. We will be advertising to acquire additional articles before the official launch of UT-JUR.
  - Due to tax law changes, stipends may be considered federal taxable income.
  - The university requires W-9 forms to be on record before any funds can be given to the students. This presented a problem for non-US students, since a Social Security Number must be obtained before submitting the W-9 form. An extra 6-8 weeks are required for this to happen.
  - Final Report deadline was moved to September 01 from the end of the Fall Semester in order to increase student compliance of Final Report submission. Still, several students did not pick up all of their stipend checks at the end of summer.
  - Need to identify a suitable room for the UGR2980 presentations and the End-of-Summer Research Symposium.
  - To keep an accurate census of undergraduate research activities in individual faculty research, especially those supported by external funding agencies or volunteered time.

Progress on goals set for AY2014-2015
- This past year we have established the web homepage and mechanism for the UT Journal of Undergraduate Research (UT-JUR). We have received three manuscripts and they have just finished the review stage. The first publication was expected early in the Spring semester 2015 but has been delayed until AY2015-16 in order to meet the number of articles criterion for obtaining an ISSN number for the journal. We have made a call for more manuscripts for publication and the response has been encouraging. With that, we expect to be able to apply for the ISSN this upcoming academic year and officially publish the first issue of UT-JUR in Spring semester 2016.
  - Expanded the Research Travel Grant Program
  - Perform complete Assessment Tasks
  - Increase Research Intensive courses
Goals for AY2015-2016

- Launch the UT Journal of Undergraduate Research with an official ISSN.
- Support proposals to be submitted to the National Science Foundation NSF-REU program and other external funding agencies.
- Launch an annual Scholars’ Celebration: Undergraduate Research Showcase for Fall semesters in collaboration with the University Libraries.
- Sponsor 10-12 UT students to attend NCUR in April 2016.
- Increase the number of undergraduate students involved in research.
- Produce a brochure describing the OUR-UT and research opportunities at UT.
- Transition to a new OUR-UT director.

OUR-UT Office Organization

- Director of Undergraduate Research (Prof. Thomas Kvale)
- Associate Director of Undergraduate Research (Dr. Larry Connin)
- Graduate Assistant (Jennifer Lucius)
- OUR-UT is housed in the Honors College, Scott Hall SH0119
Appendix:

Supporting Materials

Grant proposals -- Summaries (funded)

UT Journal of Undergraduate Research articles

IUC- Day at the Statehouse 2015

Northwest Ohio Undergraduate Research Symposium 2015

STARS and Other Academic Year Programs

OUR-UT Summer Research Participants

UGR2980: *Issues in Research and Scholarship*

Research Evaluation Summary -- Students

Student Government Survey 2014

OUR-UT Graduate Assistant Specifications/duties

OUR-UT Advisory Committee
Choose Ohio First Scholarship Program: “Building Ohio’s Sustainable Energy Future”
Initial Start date AY2009
AY2014-15
AY2014-15 Amount: $206,625 (OBOR)

Principal Investigator
Geoffrey Martin, Vice President, Institutional Research / Associate Professor, Mathematics

Co-Principal Investigators:
Thomas Kvale, Director of Office of Undergraduate Research and Professor of Physics
Daryl Moorhead, Professor, Environmental Sciences
Brian Randolph, Associate Dean, College of Engineering
Charlene Gilbert, Director of the Catharine Eberly Center for Women

Project Summary
This proposal would increase the recruitment, training and graduation of STEM students to supply the growing job markets in renewable energy and sustainable environment technologies. Northwest Ohio has a growing reputation for research, development and manufacturing in the high technology, renewable energy fields of photovoltaics (PV) and wind. In addition, NW Ohio has major research and development strengths in environmental analysis and remediation technologies. In this Choose Ohio First Scholarship (COFSP) proposal, The University of Toledo (UT), Bowling Green State University (BGSU), and the Community Colleges of Owens, Terra, and Northwest State will leverage the enormous public interest and burgeoning job markets in these fields to recruit, educate, and retain the best and brightest of Ohio’s students to support these rapidly developing high tech professions.

This COFSP: Building Ohio’s Sustainable Energy Future (BOSEF) proposal will broaden and enhance several ongoing programs at the collaborating institutions that have already demonstrated success in these areas. Our program will recruit broadly into these fields and enhance student success through a cooperative summer bridge program focused on mathematics, undergraduate research experiences for all, and integration with the Wright Center for PV Innovation and Commercialization, the Lake Erie Research Center, Center of Photochemical Sciences, and the Environmental Remediation and Restoration Experimental Park. It will prepare students for scientific and technical careers by providing internships with business, industry, agencies and non-profits in renewable energy and environmental sustainability fields. Recruiting and retaining minority and women scientists is a goal of this program and our students will benefit from the active collaboration of the existing AIMS (BGSU) and WISE (UT) programs. New undergraduate Minor degree programs in Renewable Energy also will introduce students to the broader natural and social science connections of energy and sustainability. Although the primary program focus is on the undergraduate STEM pipeline, it will include Ph.D. students and in-service high school teachers working toward M.S. degrees.

Through this grant, the participating institutions will have a comprehensive and vertically integrated approach to STEM education that will maximize student success and provide skilled professionals in these crucial STEM areas. The principal components of this program are:
- Scholarships for undergraduate students pursuing a relevant degree program.
- Stipends for summer research projects for undergraduate students pursuing a relevant degree program.
- Stipends for first year BOSEF students to attend the AIMS summer bridge program.
- Faculty Interest Group seminar series on a Sustainable Energy Future (FIG:SEF).
- Mentoring to enhance student success and retention.
- Graduate student and K-12 teacher participation.
BOSEF Undergraduate Community Members AY2014-15

AY2014-15 UT Scholarship amount: $206,625

UT COFSP-BOSEF grant Administration
Geoffrey Martin, (P.I.)
Brian Randolph, (Co-P.I.)
Tom Kvale, (Co-P.I.)
Daryl Dwyer, (Co-P.I.)
Andrew Jorgensen, (Co-P.I.)

Research Groups

<table>
<thead>
<tr>
<th>Solar</th>
<th>Wind</th>
<th>Biomass</th>
<th>Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Richard Irving</td>
<td>Thomas Kvale</td>
<td>Daryl Dwyer</td>
<td>Robert Midden (BGSU)</td>
</tr>
<tr>
<td>Brian Ashenfelter</td>
<td>Brian Randolph</td>
<td>Andy Jorgensen</td>
<td>Erika Contreras</td>
</tr>
<tr>
<td>Anna Barnes</td>
<td>Isaac Burns</td>
<td>Austin Bartos</td>
<td>Paige Kutschbach</td>
</tr>
<tr>
<td>Nathan Diemler</td>
<td>Keith Burns</td>
<td>Markus Beck</td>
<td>Katelin Kutschbach</td>
</tr>
<tr>
<td>Blaine Luszcak</td>
<td>Jennifer Collier</td>
<td>Stephanie Clendenen</td>
<td>Meri Mullins</td>
</tr>
<tr>
<td>Evan Nichols</td>
<td>Jessica Eizzie</td>
<td>Anthony Kalani</td>
<td>Makenna Salsbury</td>
</tr>
<tr>
<td>Hunter Rupp</td>
<td>Christine Hoholski</td>
<td>Lauren Marshall</td>
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<tr>
<td>Jacob Schmidt</td>
<td>Zachary Holtzapple</td>
<td>Neera Martin</td>
<td></td>
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<tr>
<td>Alieu Touray</td>
<td>Jay Nagy</td>
<td>Joseph McVeen</td>
<td></td>
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<tr>
<td>Ryan Oaks</td>
<td>Madeline Tomczak</td>
<td></td>
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<tr>
<td>Stephanie Parrott</td>
<td>Alexander Williams</td>
<td></td>
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<td>Isaac Shaw</td>
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<td></td>
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<tr>
<td>Justin Stevenor</td>
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</tbody>
</table>

Members - Multiple Groups or undeclared
Geoffrey Martin (Overseeing all groups)
Dirk Breidenbach (Education & Solar)
Katie Burns
Lisa Cardone
Sarah Curtis
Benjamin Nielsen (Education & Solar)
Paxton Pickrell
Logan Rickle
Lauren Spyker
Principal Investigator
Richard Irving, Jr., Research Assistant Professor, Physics and Astronomy

Co-Principal Investigators:
Thomas Kvale, Director of Office of Undergraduate Research and Professor of Physics

Project Summary
Funding is requested from the National Science Foundation to allow The University of Toledo (UT) to continue its successful Research Experiences for Undergraduates program in physics and astronomy. The duration of the program each summer is ten weeks, usually from the Tuesday after Memorial Day to the first week of August. Funding is requested for twelve undergraduate REU research participants per year, chosen from across the United States. Research areas available to the students at UT include at least five different fields of physics/astrophysics/medical physics, with many different subfields within the general fields, as discussed below. To enhance our recruitment of students in underrepresented and/or disadvantaged groups, we are collaborating with four community colleges in providing priority selection to five REU positions per year to those community college students. This is a renewal proposal for the current NSF grant: PHY-0648963, REU Site: Research Experiences for Undergraduates in Physics and Astronomy. The students are required to: devote priority time/effort to research, register for 1 credit hour in PHYS4910: Research Topics in Physics and Astronomy (tuition/fees paid by the REU grant) attend ARS2980: Issues in Research and Scholarship, present a mid-summer Progress Talk, make a Final Presentation to the department, and write a 10-20 page Final Report.

Intellectual Merit
The department provides a great diversity of cutting-edge research opportunities for undergraduate students in: Astrophysics/Astronomy; Atomic/Molecular/Optical Physics; Biological/Health/Medical Physics; and Condensed Matter/Materials Science Physics (with specialization in thin films, photovoltaics and photonics) with extramural funding increasing since the last proposal to over 3.5M$ per year. Opportunities exist in these areas for both experimental and theoretical research. The research projects are chosen such that the student's project will lead to eventual publication in the appropriate professional research journals. REU students have coauthored at least 40 refereed publications and have over 80 presentations at professional meetings over these eighteen years of REU support. Undergraduate participation in our departmental research program has been vigorously supported by our faculty.

Broader Impact of our Program
In order to involve students from diverse backgrounds in our expanded physics/astronomy research program, we have formed collaboration agreements with four community colleges (three in northwest Ohio and one in northern Minnesota). The students' experiences will be enhanced by their participation as mentors in the Physics Summer Camp for high school science students. We are expanding the Physics Summer Camp and involving the physics teachers from two highly respected, local schools in its planning and operation. The REU students will be required to participate in the university-wide, undergraduate research ethics seminar series and the Physics/Astronomy Bag Lunch series as described in the body of this proposal. The NSF-REU funding of UT for the past eighteen years has allowed 232 undergraduate students from across the US the opportunity to conduct state-of-the-art research in a variety of subfields of physics and astronomy. In just the past three years, 42 students participated in our program (plus two additional students with separate funding) from 30 institutions in 15 states.
The University of Toledo (lead institution with four other institutions) was recently awarded a Choose Ohio First Scholarship Program grant totaling 1.5M$ over five years in the focus area of renewable energy and sustainability. This grant has provided the impetus for the increased articulation with three local community colleges. The renewable energy area is central to Physics and Astronomy, and the REU students will benefit from this investment with added research opportunities and interactions with environmental scientists/students and photovoltaic manufacturers as discussed later in the proposal.

NSF grant number: PHY-1262810
Summer: 2015 NSF Funding (05/2015-04/2016): $100,000
Principal Investigator: Richard Irving, Jr.
Co-Investigator(s): Thomas J. Kvale

Students:

**Summer 2015 (NSF-REU + Funded by other sources but participating in our REU program)**

**Sierra Ashley,** “Changes in the Interstellar Radiation Field at High Latitudes,” University of Denver, CO (A.N. Witt)

**Timothy Alderson,** “Optical Properties from first principles computations,” The University of Toledo, OH (S. Khare)

**Kendra Bergstedt,** “A Computational and Experimental Determination of F-Values of Sn II Transitions,” University of Minnesota-Twin Cities, MN (R.E. Irving & D.G. Ellis)

**Michael Bowman,** “Optimization of Cu-doped ZnTe as a Backcontact Interface Layer in CdTe Solar Applications,” Huntington University, IN (Y. Yan & N. Paudel)

**Devon Shustarich,** “ERoEI of modern nuclear reactors using uranium,” Iron Range Engineering/Minnesota State University-Mankato, MN (S. Khare)

**Dylan Hamilton,** “Optimization of Atomic Layer Deposited SnO2 for use as a Buffer Layer in CdTe Solar Cells,” The College of Wooster, OH (V. Karpov)

**Mikhail Semaan,** “Submonolayer Growth: Sub-Diffusive Walkers,” California State University-Long Beach, CA (J. Amar)

**James McCulloch,** “Stimulated Metal Whisker Growth,” Brigham Young University, ID (D. Shvydko)

**Amanda Menechella,** “Properties of Protostellar Outflows,” The University of Toledo, OH (S.T. Megeath)

**Jacob Noon,** “Effects of Confinement on the Relativistic Energy Levels of Hydrogen,” The University of Toledo, OH (R.T. Deck/J. Amar)

**Hannah Salmon,** “Optical Emission Spectroscopy of RF Sputter Deposition of Aluminum Doped Zinc Oxide Thin Films,” University of Cincinnati, OH (N. Podraza)

**David Raker,** “Module Temperature in PV Performance Modeling,” The University of Toledo, OH (M. Heben)

**Alex Robinette,** “Characterization of X-ray emission during X-Pinch Shock Testing with Copper Target,” The University of Toledo, OH (R.E. Irving, T.J. Kvale, & T. Darling)
UT Journal of Undergraduate Research (UT-JUR). We have received three manuscripts and they have finished the review stage, with the first publication was expected early in the Spring semester 2015. However, the inaugural publication was delayed so we can have an ISSN number issued for it. This is important for it to be recognized as an archival journal. Details of the journal were included in last year’s Annual Report and are available for download from the OUR-UT website.

Accepted articles awaiting publication

Kelley Moote, “Acoustic Analysis of Vowel Duration in a Person with Broca's Aphasia and Apraxia of Speech,” (Caroline Menezes)

LaVelle Ridley, “ Recovering a Living Poet: The Poetry of Herbert Woodward Martin,” (Parama Sarkar)

Adam Wierwille, “Initial Assessment of the Correlation between Atmospheric Conditions and Photovoltaic Energy Generation at the University of Toledo,” (Randall Ellingson)
INTER-UNIVERSITY COUNCIL OF OHIO

IUC Day at the Statehouse – March 10, 2015
Message: Higher Education – An Investment in Ohio’s Future.

UT Student participants in the IUC Day.
All are associated with the Choose Ohio First program “Building Ohio’s Sustainable Energy Future”.

Ryan Oaks, UT
Justin Stevenor, UT
Isaac Shaw, UT

Morning Briefing Details: 9:45 a.m. – 10:45 a.m.
1. Location – 10 West Broad St., Columbus, Ohio, 43215
2. Open to Presidents, GRRs, Students, and other participants. Presidents have priority seating at the conference table; all others will be accommodated as space permits on a first-come, first-serve basis.
3. Bruce Johnson to present briefing materials, the day’s objective, and schedule of events.

Luncheon Details: Le Bistro Room DoubleTree Suites 11:00 p.m. – 1:30 p.m.
1. Location – 50 South Front St., Columbus, Ohio, 43215
2. Arrive at the Le Bistro Room not later than 11:00 a.m.
3. Legislative members and others arrive between 11:00 a.m. and 1:30 p.m. for lunch and interaction with IUC member participants.
4. All IUC members and Day at the Statehouse participants are invited for lunch.
5. Seating will be flexible, it will be designed to accommodate an informal, buffet-style lunch and there will be a mix of IUC members, Legislators, and students.

Legislative Visit Details: 1:30 p.m. – 5:00 p.m.
1. Legislative meetings are the purpose of the day.
2. Legislators meeting with UT students:
   a) Senator Edna Brown, Minority Whip, 11th District
   b) Senator Randy Gardner, 2nd District
   c) Teresa Fedor, State Representative House District 45
   d) Claire Childers, Legislative Aide to State Representative Fedor House District 45
   e) Stephen A. Huffman, State Representative House District 80
   f) Nick Derksen, Legislative Aide to State Representative Huffman House District 80
   g) Michael Sheehy, State Representative House District 46
   h) Peter Bucher, Legislative Aide to State Representative Sheehy House District 46
   i) Jared Holt, Legislative Aide to State Representative Ashford House District 44
UT Student participants

<table>
<thead>
<tr>
<th>NAME</th>
<th>Department</th>
<th>Research Title (Faculty Mentor)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sandy Baghdy</td>
<td>Biological Sciences</td>
<td>A novel mutation of centriole detachment in <em>Drosophila melanogaster</em> sperm (Tomer Avidor-Reiss)</td>
</tr>
<tr>
<td>Emily Simone</td>
<td>Biological Sciences</td>
<td>The Biochemical Characterization of Poc1 (Tomer Avidor-Reiss)</td>
</tr>
<tr>
<td>Nicole Clark, Marcus Basiri, Andrew Ha</td>
<td>Biological Sciences</td>
<td><em>B9d1</em> is Essential for Male Fertility (Tomer Avidor-Reiss)</td>
</tr>
<tr>
<td>Merna Naji, S. Adnan, D. Shubham, M. Praveen</td>
<td>Biological Sciences</td>
<td>A novel mutation of centriole detachment in <em>Drosophila melanogaster</em> sperm (Malathi Krishnamurthy)</td>
</tr>
<tr>
<td>Alisha Sangal</td>
<td>Biological Sciences</td>
<td>Treating Polycystic Ovarian Syndrome with Anti-Inflammatory Therapy (Jennifer W. Hill)</td>
</tr>
<tr>
<td>Batool Mehdi</td>
<td>Biological Sciences</td>
<td>Regulation of MLK3 activation in ovarian cancer cells (Deborah Chadee)</td>
</tr>
<tr>
<td>Alexander Stuart</td>
<td>Chemistry</td>
<td>Green Synthesis of Precursor Compounds Used to Prepare Protective Tin Oxide Thin Films for Photovoltaic Applications (Dean Giolando)</td>
</tr>
<tr>
<td>Cassandra Pittman</td>
<td>Instrumentation Center</td>
<td>Virtual field trip: how the University of Toledo uses cyber access and sophisticated microscopes to create a unique classroom experience (Kristin Kirschbaum)</td>
</tr>
<tr>
<td>Mary Hillegas, Jay Nagy, Ryan Oaks, Isaac Shaw, Justin Stevenor, Jessica Ezzie</td>
<td>BOSEF Building Ohio’s Sustainable Energy Future: Subsequent Effects of Wind Power (Thomas Kvale &amp; Brian Randolph)</td>
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STARS and Other Academic Year Programs

Description
The Student Achievement in Research and Scholarship Program (STARS) is an undergraduate research program designed to prepare high achieving low-income, (potential) first generation and students from underrepresented groups for the next level in their educational continuum through graduate education and professional careers. STARS is open to all undergraduate students that are Pell Grant eligible at all levels, but high priority will be given to sophomores and juniors that are goal oriented, highly motivated, and high achieving.

The STARS Program offers undergraduate students the opportunity to conduct scholarly research with a faculty mentor, receive paid research assistantships that will better prepare them for the graduate school admissions process and for the Graduate Record Exam (GRE). While the immediate focus of the program is to encourage and help undergraduate students successfully enroll and participate in graduate school, the long-term goal of the program is to enlarge the pool of those wishing to become college faculty members and/or trained professions in Ohio.

STARS Scholars AY2014-15

<table>
<thead>
<tr>
<th>NAME</th>
<th>Department</th>
<th>Research Title (Faculty Mentor)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LaVelle Ridley</td>
<td>English</td>
<td>Black British and Postcolonial Writing (Kimberly Mack), $1,000</td>
</tr>
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</table>

Academic Year Research Program AY2014-15

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<tr>
<th>NAME</th>
<th>Department</th>
<th>Research Title (Faculty Mentor)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andrew Thomas, Samantha Watson, Hannah Soulier, Jenny T. Pan</td>
<td>Education</td>
<td>In Factis Pax(Journal) News Media, Society, and the Mind (Florian Feucht), $1,000</td>
</tr>
<tr>
<td>Cory Howe</td>
<td>Bioengineering</td>
<td>Identification of genes necessary for the de novo biosynthesis of D-luciferin in fireflies (Patricia Relue) $300</td>
</tr>
</tbody>
</table>

Travel Research Grant Program AY2014-15

<table>
<thead>
<tr>
<th>NAME</th>
<th>Department</th>
<th>Travel (Faculty Mentor -- Amount)</th>
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</thead>
<tbody>
<tr>
<td>Jacob Fox</td>
<td>Psychology</td>
<td>Does Choosing Help Everyone? Examining the Relationships between Choice, Self-Construal, and Pain, Midwestern Psychological Association Conference (Andrew Geers) $300</td>
</tr>
<tr>
<td>Sierra Parker</td>
<td>Pharmacy</td>
<td>Roles of Traditional Japanese Medicine in Japanese Healthcare, research trip (Steven Peseckis) $400</td>
</tr>
<tr>
<td>John Dilworth</td>
<td>Geology</td>
<td>“Determining the Lake Agassiz Moorhead Low elevation from compaction ridges in the Red River Valley, USA,” 2015 GSA North-Central Section Meeting in Madison, Wisconsin, (Timothy Fisher) $300</td>
</tr>
<tr>
<td>Callan Bialorucki</td>
<td>Bioengineering</td>
<td>In situ osteoblast mineralization mediates post-injection mechanical properties of osteoconductive material, Orthopedic Research Society's (ORS) 2014 Annual Meeting (Eda Yildirim-Ayan) $300</td>
</tr>
<tr>
<td>NAME</td>
<td>Department</td>
<td>Research Title (Faculty Mentor)</td>
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<tr>
<td>Pape Ba</td>
<td>Civil Engineering</td>
<td>Understanding the Influence of Algal Bloom on Emerging Nitrogenous Disinfection By-production Formation (Youngwoo Seo)</td>
</tr>
<tr>
<td>Matthew Bommarito</td>
<td>Chem. and Biochem.</td>
<td>Structural Tuning of Ionic Liquids for the Extraction and Desorption of Bacterial Plasmid DNA (Jared Anderson)</td>
</tr>
<tr>
<td>Wayne Brakel</td>
<td>Business</td>
<td>Video Gaming Trends in Japan and America: a Case Study (Joseph Hara)</td>
</tr>
<tr>
<td>Keyana Carter</td>
<td>Biological Sciences</td>
<td>The Significance of E-Cadherin in Breast Cancer Cells Response to Chemotherapy (William Taylor)</td>
</tr>
<tr>
<td>Brian Collins</td>
<td>Chem. and Biochem.</td>
<td>New 3-iminoamine Catalyst for the Production of Biodegradable Polymers (Joseph Schmidt)</td>
</tr>
<tr>
<td>Victoria Drago</td>
<td>Chem. and Biochem.</td>
<td>Structure/function studies of the essential Trehalose-6-phosphate phosphatase encoded by Mycobacterium tuberculosis (Donald Ronning)</td>
</tr>
<tr>
<td>Jared Dupes</td>
<td>Chem./Environ. Eng.</td>
<td>Low Cost Method for Harvesting Algal Biomass from Dilute Cultures (Sridhar Viamajala)</td>
</tr>
<tr>
<td>Alexis Garon</td>
<td>Rehabilitation Sciences</td>
<td>Acoustic and Articulatory Analysis of the Changes in a Transgender (Caroline Menezes)</td>
</tr>
<tr>
<td>Jonathon Genson</td>
<td>Biological Sciences</td>
<td>Optogenetics-mass spectroscopy hybrid approach to map the death and magnitude of information flow in GPCR signaling networks in living cells (Ajith Karunarathne)</td>
</tr>
<tr>
<td>Tyler Frey</td>
<td>Physics and Astronomy</td>
<td>Measuring Accretion Rates of Protoplanetary Disks Around Young Stars in Cepheus OB3b (Thomas Megeath)</td>
</tr>
<tr>
<td>Jesse Glass</td>
<td>Biological Sciences</td>
<td>Discovering the Role of Centriolar Formation (Tomer Avidor-Reiss)</td>
</tr>
<tr>
<td>Darin Goodman</td>
<td>Engineering</td>
<td>Optimization of Conversion of Biomass Sugars to Furans (Sasidhar Varanasi)</td>
</tr>
<tr>
<td>Alex Hanes</td>
<td>Chem. and Biochem.</td>
<td>The effects of exfoliating agents on tin sulfides with layered structures (Cora Lind-Kovaes)</td>
</tr>
<tr>
<td>Justin Koralewski</td>
<td>Foreign Languages</td>
<td>S case study of the Hafen City redevelopment project (Friederike Emonds, Sujata Shetty)</td>
</tr>
<tr>
<td>Alessandra Krusciet de Moraes</td>
<td>Chem. Eng.</td>
<td>Design of biogas plant to produce electric energy using the food waste produced by cafeterias in the main campus of the University of Toledo (Glenn Lipscomb)</td>
</tr>
<tr>
<td>Francesca Leonardi</td>
<td>Biological Sciences</td>
<td>To Dissect the Effects of Bcr-Abl Expression on the Mitotic Checkpoint and Aneuploidy (Song Tao-Liu)</td>
</tr>
</tbody>
</table>
Marisa Lucarelli  Rehabilitation Sciences  Articulatory kinematics and vowel space in those with Parkinson's Disease (Caroline Menezes)
Batool Mehdi  Biological Sciences  Regulation of MLK3 activation in ovarian cancer cells (Deborah Chadee)
Kristyn Nichols  Rehabilitation Sciences  An acoustical analysis of articulation: Parkinson's Disease (Caroline Menezes)
Isaac Ohene-Adu  Pharmacy  Synthesis of a fluorescent probe molecule for target protein identification (Viranga Tillekeratne)
Brandy Pelfrey  Rehabilitation Sciences  Working memory and its effect on coherent speech (Caroline Menezes)
James Perrine  Phil./Law and Soc. Tho.  Judicial Systems: Societal perspectives and their resulting behavior (Benjamin Grazzini)
Alisha Sangal  Biological Sciences  Treating Polycystic Ovarian Syndrome with Anti-Inflammatory Therapy (Jennifer Hill)
Nadeen Sarsour  Chem. and Biochem.  Characterization of Prolyl tRNA and Proline- tRNA Synthetase from Trypanosoma cruzi (Timothy Mueser)
Rebecca Shaheen  Bioengineering  Stem Cell and Differentiation around Myocardial Tissue Environment (Eda Yildirim-Ayan)
Joseph Sheehan  Biological Sciences  Chemical Induced Axon Regeneration to Improve Outcome in Neural Injuries (Guofa Liu)
Emily Simone  Biological Sciences  The biochemical characterization of Poc1 (Tomer Avidor-Reiss)
Brad Taranto  Pharm-Med/Bio Chem.  Histone deacetylase inhibitors with tropolong as the metal-binding group (Viranga Tillekeratne)
Raj Jessica Thomas  Biological Sciences  Investigating the role of MLK3 in mitotic progression (Debra Chadee)
Andrew Trumbull  Bioengineering  Osteoinductive and angiogenic growth factors for bone regeneration (Eda Yildirim-Ayan)
Alicia Ward  Biological Sciences  Development of NO mimetic furoxans as a neuroprotective agent for ischemic stroke (Zahoor Shah)
Nicholas Whitmore  Biological Sciences  The incorporation of the intermediate filament IFC-1 in Caenorhabditis elegans (John Plenefisch)
Alexander Wisniewski  Biological Sciences  CEACAM1 links insulin resistance to NASH (Sonia Najjar)
Melissa Yamsek  Chem. and Biochem.  Magnetic Ion Liquids as Solvents for the Extraction, Analysis, and Preservation of DNA (Jared Anderson)
Sydney Yoho  Biological Sciences  The role of RNF114 in osteoblast differentiation (Douglas Leaman)
<table>
<thead>
<tr>
<th>NAME</th>
<th>Department</th>
<th>Research Title (Faculty Mentor)</th>
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<tbody>
<tr>
<td>Quinton Babcock</td>
<td>Economics</td>
<td>The Feasibility of the Buffalo Girls Project (Barbra Mann)</td>
</tr>
<tr>
<td>Judy Daboul</td>
<td>Biological Sciences</td>
<td>Investigating the Relationship between the Kir6.2 subunit of the KATP channel and CEACAM2 on the excitability of NPY neurons (Sonia Najjar)</td>
</tr>
<tr>
<td>Kathryn Flanagan</td>
<td>Pharmacy</td>
<td>Effect of Pharmacy Services On Patient Outcomes: Knowledge and Economics (Sharrel Pinto)</td>
</tr>
<tr>
<td>Heidi Kuchta</td>
<td>Physics and Astronomy</td>
<td>Searching for Brown Dwarfs in the Orion Molecular Clouds (Thomas Megeath)</td>
</tr>
<tr>
<td>Noah Mainzinger</td>
<td>Engineering</td>
<td>Pill Application for Android (Richard Molyet)</td>
</tr>
<tr>
<td>Michaela Roberts</td>
<td>Biological Sciences</td>
<td>Possible New Cause for Male Infertility (Tomer Avidor-Reiss)</td>
</tr>
<tr>
<td>Melinda Rosales</td>
<td>Biological Sciences</td>
<td>Headless IFA-3 gene (John Plenefisch)</td>
</tr>
<tr>
<td>Nicholas Stimes</td>
<td>Biological Sciences</td>
<td>Regulation of MAPK signaling by oxidative stress in colon cancer cells (Deborah Chadee)</td>
</tr>
<tr>
<td>Lekha Vemuru</td>
<td>Biological Sciences</td>
<td>The Importance of Distinguishing Intermediate Filaments in C. Elegans (John Plenefisch)</td>
</tr>
<tr>
<td>Kevin Wissman</td>
<td>Pharmacy</td>
<td>Synthesis of a New Class of Histone Deacetylase Inhibitors (Viranga Tillekeratne)</td>
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</tbody>
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<table>
<thead>
<tr>
<th>NAME</th>
<th>Department</th>
<th>City Office</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grisonranyel Barrios Rodrigues</td>
<td>Pol. Sci. and Soc. Work</td>
<td>Toledo Department of Neighborhoods</td>
</tr>
<tr>
<td>Lucille Frank</td>
<td>Political Science</td>
<td>Toledo Mayor’s Office</td>
</tr>
<tr>
<td>Ashley Jemerson</td>
<td>Criminal Justice</td>
<td>Law Enforcement's Protocol with Teen Runaways</td>
</tr>
<tr>
<td>Natalie Rodrigues-Steen</td>
<td>Political Science</td>
<td>Toledo Affirmative Action/Contract Compliance Office</td>
</tr>
<tr>
<td>Sebastian Wright</td>
<td>Political Science</td>
<td>Toledo Finance Office</td>
</tr>
</tbody>
</table>
All presentations are scheduled for Thursdays, Rocket Hall 1205.

May 28 11:00am “Meet and Greet,” Steven Peseckis, Associate Dean, Jesup Scott Honors College
11:15am “Summer Schedule & Procedures,” Thomas Kvale, Office of Undergraduate Research
11:30am “Laboratory Safety,” Andrew Shupp, Office of Safety & Health
12:30pm Pizza Lunch

June 04 9:00am “Research Ethics and Compliance,” Walter Edinger, Office of Research & Sponsored Programs

June 11 9:00am “Advanced Research in the Library,” Wade Lee, University Libraries

June 18 No Presentation -- “Take Home Assignment “

June 25 No Presentation -- “Take Home Assignment “

July 02 No Presentation -- “Independence Day Holiday”

July 09 9:00am “Ethics in Research,” William Messer, Vice President of Research

July 16 9:00am “Business Prospects and Patents,” Mark Fox, Office of Research & Sponsored Programs

July 23 9:00am “Overview and Summation,” Steven Peseckis, PhD, Associate Dean, Jesup Scott Honors College; Associate Professor of Medicinal Chemistry

July 30 No Presentation -- “Seminar and Poster Preparation Week”

August 06 (All day) Summer Research Presentations (Student Union SU2582-84):
• 9:00am - 9:30am Oral and Poster Presentation Set-up
• 9:30am - 11:30am Oral Session 1
• 11:30am - 12:00n Poster Session 1
• 12:00n - 12:15pm Welcoming Remarks -- John Barrett, Interim Provost and Executive Vice President
• 12:15pm - 1:00pm Pizza Lunch and Poster Session 2
• 1:00pm - 3:00pm Oral Session 2
RESEARCH PROGRAM EVALUATION - STUDENT

Office of Undergraduate Research (OUR-UT) Summer Research Programs
The University of Toledo

2015

To help us improve our summer research program in future years, please give us your confidential opinion on the following questions. Please note that the term “research” used in this form is meant to also include “creative activity” and “internship”. Thank you very much. Indicate your selection by CIRCLING (or putting an “X” by) the number.

All responses will be kept anonymous.

In which research program did you participate? CIRCLE (or put an “X” by) your program.

<table>
<thead>
<tr>
<th>FYSRE</th>
<th>USRCAP</th>
<th>TollInterns</th>
<th>BOSEF</th>
<th>Other (Name):</th>
</tr>
</thead>
</table>

1. Did this summer’s research experience live up to your expectations in general?

<table>
<thead>
<tr>
<th>Definitely Yes</th>
<th>Neutral</th>
<th>Definitely No</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>2</td>
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</tbody>
</table>

FYSRE Average (9): 1.6 USRCAP Average (23): 2.2 TollInterns Average (2): 1.0

2. How much do you think that your research experience has helped you educationally?

<table>
<thead>
<tr>
<th>Learned a Lot</th>
<th>Neutral</th>
<th>Not Worth Much</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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</table>

FYSRE Average (9): 1.4 USRCAP Average (23): 1.5 TollInterns Average (2): 1.0

3. How do you rate the level of your research project this summer in regards to your educational level?

<table>
<thead>
<tr>
<th>Far above my level</th>
<th>About Right</th>
<th>Far below my level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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</tbody>
</table>

FYSRE Average (9): 3.8 USRCAP Average (23): 3.2 TollInterns Average (2): 2.5

4. How skilled in the tools/techniques/methods of inquiry in the profession of the research project did you start with at the beginning of the summer?

<table>
<thead>
<tr>
<th>Very skilled/knowledgeable</th>
<th>Neutral</th>
<th>Not very skilled/knowledgeable</th>
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</thead>
<tbody>
<tr>
<td>1</td>
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<tr>
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</tbody>
</table>

FYSRE Average (9): 4.2 USRCAP Average (23): 3.2 TollInterns Average (2): 3.0

5. How skilled in the tools/techniques/methods of inquiry in the profession of the research project did you acquire by the end of the summer?

<table>
<thead>
<tr>
<th>Very skilled/knowledgeable</th>
<th>Neutral</th>
<th>Not very skilled/knowledgeable</th>
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<tbody>
<tr>
<td>1</td>
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</table>

FYSRE Average (9): 2.0 USRCAP Average (23): 1.8 TollInterns Average (2): 1.5

6. How much time did your faculty mentor spend per week personally mentoring you on your research project?

<table>
<thead>
<tr>
<th>0-1hrs/wk</th>
<th>1-2 hrs/wk</th>
<th>2-3 hrs/wk</th>
<th>3-4 hrs/wk</th>
<th>4-5 hrs/wk</th>
<th>5-6 hrs/wk</th>
<th>&gt;6 hrs/wk</th>
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<tr>
<td>1</td>
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<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
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</tbody>
</table>

FYSRE Average (9): 4.1 USRCAP Average (23): 4.0 TollInterns Average (2): 7.0

7. How do you rate your faculty mentor/supervisor’s interactions in helping you in your research experience?

<table>
<thead>
<tr>
<th>Very Helpful</th>
<th>Neutral</th>
<th>Not Helpful</th>
</tr>
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<tbody>
<tr>
<td>1</td>
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<tr>
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FYSRE Average (9): 1.6 USRCAP Average (23): 1.6 TollInterns Average (2): 1.0
8. How do you rate your research experience in terms of the freedom you had to do things your own way?

None: I did what I was told   About Right   Too much: I got lost

1   2   3   4   5   6   7

FYSRE Average (9): 3.4  USRCAP Average (23): 4.2  TollInterns Average (2): 4.0

Critical Reflection Questions (Use additional pages and/or backs of these pages if desired.)

1. Why did you choose to become involved in a research project this summer?

2. What prior knowledge did you find useful in your research project (e.g., courses, experiences, etc.)?

3. What knowledge was missing that would have helped you in your research project (e.g., courses, experiences, etc.)?

4. What new knowledge central to your project did you discover in your research?

5. What new knowledge tangential or incidental to your project did you discover in your research (e.g., new methods, connections, resources, etc.)?

6. How might your research project impact the greater community (professional and/or societal)?

Please list any additional comments.

If eligible, are you interested in participating in one of the OUR-UT summer research programs again?

Definitely Yes   Neutral   Definitely No

1   2   3   4   5   6   7   ---   N/A

FYSRE Average (9): 1.2  USRCAP Average (23): 1.4  TollInterns Average (2): 1.5

Thanks again for your time, and best wishes for continued success in all of your endeavors. As part of the tracking we need (and want) to do, please tell us about your degrees received and your career activities (grad school, work, etc) after participating in our program. Please keep in touch with us!

Thomas Kvale, director of the Office of Undergraduate Research

Please return this questionnaire either via email (undergradresearch@utoledo.edu) or by campus mail:

Office of Undergraduate Research
The University of Toledo
MacKinnon Hall (MK1010-A), Mail Stop 504
Toledo, Ohio 43606
Research Evaluation 2015 Summer

USRCAP

Question 1 Comments
-This is a yes and no form me because I thought it would be extremely hard, I did meet challenges as I leaned what to do but it wasn’t that bad.

Question 2 Comments
-I believe I had received education comparative to a Master’s student.

Question 3 Comments

Question 4 Comments
- I’ve been working on this project for approximately one year.

Question 5 Comments

Question 6 Comments
-Most of the thought was independently done by me.
- If I had any questions or concerns my mentor was always willing to help.
- This is not always true, nut for the beginning of my research he was very interactive for me.
- As necessary for advice.

Question 7 Comments
-Very knowledgeable and helpful.
-He is a well knowledge and a good professor. It is always great working with him.

Critical Reflection 1: Why did you choose to become involved in a research project this summer?
1. It helped further my knowledge and career.
2. I participated in FYSRE and I hadn’t finished everything (all the projects) that I wanted to.
3. To gain experience in a research and lab environment.
4. To learn more about memory and speech planning.
5. For my honors thesis.
6. To gain more hands on experience
7. I plan to go on to graduate school and it gives me great experience. Also, I’ve been involved with research for a while now and enjoy it a lot.
8. I wanted to further my skills in the lab and become more independent.
9. Honors research requirement.
10. To get published.
11. Continue previous research I started 2 summers ago.
12. Opportunity to become involved with research. My PI/mentor taught a class I previously took, my TA brought me into the lab. This opportunity will bring recognition when applying at other institutions.
13. Was working in the lab already.
14. To help shape my career path.
15. Interest in graduate school.
16. I was planning on helping my professor with research this summer anyway so I thought to apply for the grant.
17. I already spend a lot of time with research so I wanted to continue in the summer.
18. I have been involved throughout the year and wanted to continue during the summer.
19. If I was not funded, the project would not have moved forward.
20. I became involved because I wanted to explore other opportunities in my field of biology, I knew I could gain more from the experience.
21. Thesis important for grad school.
22. Gave me the time to focus on continuing my research.
23. N/A
24. To continue undergrad research for honors thesis and grad school.
25. I was working on research since last summer, but USRCAP was a great opportunity.

Critical Reflection 2: What prior knowledge did you find useful in your research project?
2. The course cell bio taught by Dr. Vestel helped a lot.
3. Organic and general chemistry labs, synthetic organic chemistry labs.
4. Learning how to use PRAAT.
5. Biology and all lab courses, Biology WAC courses
6. Cell Bio course
7. The knowledge I’ve gained from courses, particular biochemist, and analytical chemistry as well as previous research experiments.
8. My upper level biology labs.
9. General and organic chemistry lab.
10. Classes
11. Previous research experiments and cell biology.
13. Previous knowledge gained in labs.
16. I used previous speech courses as well as prior training on methods and equipment.
17. Many courses and other research.
18. I took a phonetics course and an independent research class that really influenced my experience this summer.
19. Material learned from previous courses.
20. Cell biology and cell biology lab were the two courses which helped me the most.
21. Stats, methods, research practicum.
22. Computer programming background.
23. N/A
24. Core science classes.
25. Yes, I am a research student since last summer.
Critical Reflection 3: What knowledge was missing that would have helped you in your research project?

1. Surveying people.
2. None that I can think of.
3. More familiarity with NMR and general research practices.
4. Knowing how to use IPM SPSS.
5. N/A
6. Technique and running experiments
7. It would be helpful to have taken instrumental analysis.
8. N/A
9. Polymer science, vessel and metallurgical design.
10. Beauforatic work.
13. More basic knowledge on antibodies through classes.
14. My summer research experience was adequate. M
15. Better physics classes.
16. N/A
17. I didn’t know all of the programs.
18. Nothing!
19. None that I can think of.
20. I was unsure of how to progress my research at times when there was a setback.
21. N/A
22. A better technical writing background.
23. N/A
24. N/A
25. Probably grading more papers could have been useful.

Critical Reflection 4: What new knowledge central to your project did you discover in your research?

1. The Gacha Crisis.
2. Cell signaling pathways.
3. I learned just how much effort is required to synthesize and isolate molecules and strategies for doing so successfully.
4. I learned how to used IBM SPSS and how to conduct an entire experiment.
5. N/A
6. Connections and scientific experiment methods
7. I discovered a lot about PCR and the extensible components which allowed me to develop a new technique which can be applied for the direct amplification of DNA enriched in a MIL
8. More information recording the misoric process.
9. Polymer chemistry.
10. Social norms, effecting societal behaviors.
11. Physiology surrounding metabolic diseases.
13. Use of a different secondary antibody.
15. N/A
16. I leaned a lot about Parkinson’s disease as a whole and more about the methods regarding EMA.
17. I learned how to use new programs.
18. How to run the experiment and work the EMA machine.
19. How my project related to human diseases and the overall importance of my project.
20. I learned a lot about the discovery and the process of ferroptosis.
22. N/A
23. N/A
25. The formula I was working with was modified in new papers, so I could use the new one I got to know new stuff.

Critical Reflection 5: What new knowledge tangential or incidental to your project did you discover in your research?
1. Gacha Crisis.
2. Immunoprecipitation.
3. Learned many new laboratory techniques and applied knowledge of organic chemistry practically.
4. I learned how to fill out an IRB.
5. Tissue Processing and staining’s
6. Hopefully it can serve as a guide for the lab I wanted in to push forward their research.
7. I discovered the new methods as mentioned above and I was able to fo to a conference and meet a lot of productive scientist in the field.
8. Accidentally discovered how easy it was for cells to become contaminated, new largos that affected the abikinase of me MLF71161 cells.
9. Lab- scale research process, scaling up a process.
10. See #4
11. New research methods.
12. Learning methods used in a variety ways that have been implemented in science community.
13. Different dilutions of antibodies work better than others.
15. New connections with faculty, Better report writing.
16. New methods of research and analysis of data.
17. Many new resources.
18. How to collect and record data along with the analysis project.
19. Using alternative methods for my experiments.
20. I discovered that different serums have different effects in regulating ferroptosis. Specifically cosmic calc serum potential has an inhibitor of this cell path.
21. N/A
22. N/A
23. N/A
24. Problem solving (solvent was contaminated)
25. New methods and a new formula.

Critical Reflection 6: How might your research project impact the greater community?
1. Updates information that is outdated.
2. I always that that’s it’s important to be a part of the solution- so it’s great that I can contribute even a little bit.
3. My research could be the basis for further research involving trodohones and tropoues ad leas molecules for HDAC inhibitors.
4. It is a preliminary study that we hope can eventually be used to created new therapy techniques for those with smaller working memories.
5. N/A
6. Treatment for a disease- potential
7. We recently submitted the method to a journal this technique can be approved to many different fields in the biochemical sciences such as forensics, genetics, and food analysis.
8. It was released to misos in cancer cells, so hopefully it will/ did help the future of cancer research.
9. If successfully implemented, reduce the reliance in fossil fuels. Especially automatic.
10. Further research can be done to help.
11. Therapeutic treatments of insulin resistance and its subsequent complications.
12. Ready to break through in applications of ionic liquids and DNA extraction.
13. Potentially determine possible causes of male infertility.
14. My research has focused on finding cures for cancer so with further development on my research we can all cure cancer.
15. Eventually may effect stabilization techniques in food and medicine.
16. Hopefully this will help create new therapy methods for Parkinson’s clients.
17. It will help the speech pathology community greatly.
18. Finding new areas of therapy for individuals with Parkinson’s.
19. Sure certain diseases such as cancer.
20. My research could be furthered and I could potentially pinpoint the inhibitor of ferroptosis that exhibits in the serum so that it can be used in other experiments to regulate the cell death. The goal is to get ferroptosis involved in cancer cell death.
22. N/A
23. N/A
25. My research could be good for environmental who was working with the nutrient transfer of Iruim Prainine.

Additional Comments

FYSRE

Question 1 Comments
- Yes, I learned a lot about researching methods.

Question 2 Comments
- I understand that the application of what I was taught in my chemistry and biology classes.

Question 3 Comments
- A lot of the procedures were ones I had done before with some new protocols.

Question 4 Comments
- I knew information, but was not sure how it would be applied.

Question 5 Comments
- I felt comfortable with I did and why I did it.

Question 6 Comments
- I worked on an application alone so we didn’t meet a lot.

Question 7 Comments
- Chadee is great.
- Always available and made sure I understood the experiments.

Critical Reflection 1: Why did you choose to become involved in a research project this summer?
1. I wanted to advance my career and learn.
2. So I could continue the work I was doing in the spring semester.
3. I was already working in a lab and the grant was a tool to gain more independence and be more involved.
4. In preparation for my future master’s degree and research for my honors thesis.
5. I wanted to gain more experience in the biology field. I also wanted to make sure I was going down the right career path.
6. I had a project to do that counted as research.
7. I thought that research would be a good way to learn more hands-on stuff. Research is really important if you plan on entering the medical profession, and this was a good start.
8. New experience, resume builder.
9. I wanted to explore an area that I did not previously know too much about.
Critical Reflection 2: What prior knowledge did you find useful in your research project?
1. BIOL 2170, previous training.
2. Math, physics, and coding classes.
3. I find my basic science courses were helpful, but most knowledge was learned in the lab.
4. Working in the lab prior to beginning my research and meeting with Wade Lee.
5. Bio 2150/ 2170, General chemistry and labs.
6. Intro to JAVA.
7. Bio labs were a little bit useful but mostly my previous experience shadowing in the lab in high school was helpful.
8. Self-education regarding the topic.
9. My intro biology and chemistry courses.

Critical Reflection 3: What knowledge was missing that would have helped you in your research project?
1. None.
2. Higher math and physics classes I was in.
3. Having a better background on genetics and general lab experience would be helpful.
4. N/A
5. Just more upper level labs.
6. None.
7. Not much. I feel research is very specifies to the particular lab. For example: if I start working in another lab, some basic procedures such as cell structure and PCR might be useful but I would also have to learn how that lab does their procedures.
8. N/A.
9. Organic chemistry and more information on specific terms needed in the experiments.

Critical Reflection 4: What new knowledge central to your project did you discover in your research?
1. The interactions between several MAP3K pathway proteins.
2. I learned all about what brown dwarfs are and how they form. It was very interesting.
3. Several fly mutants were found to have an effect on the development of the offspring.
4. I learned a lot about patent care and analysis of data as well as how to do lit reviews.
5. I learned more about C elegans.
7. Basically we discovered further evidence for the role of CEACAM2 in regulating the NPY pathway to decrease GIP1/insulin release and the mechanism in which it does.
8. Agricultural expertise.
9. I had to know about the life cycle of c. elegans and how to use s PCR machine.

Critical Reflection 5: What new knowledge tangential or incidental to your project did you discover in your research?
1. New connections.
2. More knowledge in coding and astronomy.
3. I learned how to better my techniques by finding things that worked and did not.
4. I made many connections with pharmacists and with patients.
5. I made new connections.
6. Project/ Program planning.
7. We figured out that measuring calcium gives lots of curves rather than a single neat curve, so we will switch to measuring potassium in the future.
8. Managing complex workflow.
9. I found out how to design and order specific primers online using company information.
10.

Critical Reflection 6: How might your research project impact the greater community?
1. It will help understand more about colon cancer.
2. Once I finish it will provide more context and help to the star research community.
3. Hopefully my research will determine possible causes for male infertility.
4. Reading my paper. It will, in the end, improve patient’s well-being.
5. It will help with intermediate filaments because C elegans and intermediate filaments are very similar to ours.
6. It will help people take prescription medicate non time.
7. Diabetes is a very serious disease and knowing new biomarkers and genetic predisposition can go a long way in prevention. Knowing the mechanism behind the pathway can also being about new ways of treatment.
8. N/A
9. It will further the understanding of the human body as well as show the importance of cellular attachment.

Additional Comments

TolInterns

No Comments Questions 1-7

Critical Reflection 1: Why did you choose to become involved in a research project this summer?
   1. I thought it was a good opportunity.
   2. N/A

Critical Reflection 2: What prior knowledge did you find useful in your research project?
   1. My classes.
   2. N/A

Critical Reflection 3: What knowledge was missing that would have helped you in your research project?
   1. Being able to devout a lot of time to one research project.
   2. N/A

Critical Reflection 4: What new knowledge central to your project did you discover in your research?
   1. Better researching skills.
   2. N/A

Critical Reflection 5: What new knowledge tangential or incidental to your project did you discover in your research?
   1. I learned a lot about the city, met new people, and learned about the work environment.
   2. N/A

Critical Reflection 6: How might your research project impact the greater community?
   1. Helped the city.
   2. N/A

Additional Comments
Internal funding for undergraduate research at UT has increased significantly 2006. What should be the next phase of undergraduate research enhancement, keeping in mind that priorities may have to be set? Rank the following items, with 1 = highest priority, 6 = lowest priority. Please do NOT list duplicate numbers.

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<tr>
<th>Number of Respondents: 19</th>
<th>Increase sumer stipend amount</th>
<th>Increase number of summer stipends</th>
<th>Include summer housing</th>
<th>Include summer course credit (tuition)</th>
<th>Create focused, interdisciplinary research groups</th>
<th>Create academic year research programs</th>
<th>Other</th>
<th>Other: Description &amp; Suggestions</th>
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Priority: 1 = Highest priority, 6 = lowest priority

Increase summer stipend amount  
Increase number of summer stipends  
Include summer housing  
Include summer course credit (tuition)  
Create focused, interdisciplinary research groups  
Create academic year research programs
Which of the following are good methods to inform students about research programs, opportunities, events, etc.? 1 = best method to reach the most number of students, 6 = reaches the least numbers of students. Duplicate numbers are OK for this question.

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<td>faculty</td>
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<td>Information kiosks / Bulletin Boards</td>
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<tr>
<td>iCollegian ads</td>
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<td>Student Government / Student Affairs</td>
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<td>Networking sites</td>
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<td>Other: Description &amp; Suggestions</td>
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Information Transmittal: 1 = Best method for most students, 6 = least numbers of students

- **MYUT**
- **direct emailing**
- **faculty**
- Information kiosks / Bulletin Boards
- iCollegian ads
- Student Government / Student Affairs
Office of Undergraduate Research (OUR-UT)

Job Description:

The Office of Undergraduate Research graduate assistant is offered an opportunity to gain a variety of responsibilities and skills associated with mentoring and facilitating undergraduate research and scholarship. Essentially working in cooperation with the Honors College and across the various university Colleges and Departments, the graduate assistant will gain experience with such areas as office management and organization; program and event planning; assessment and experiential learning objectives/outcomes; faculty/student/alumni database management; research programs participation requirements verification; and undergraduate mentorship.

Primary Responsibilities:

- Routine or reoccurring tasks of the office.
  - Provide “First Contact or Q&A” for students interested in research involvement.
  - Maintain tracking of grant applications.
  - Help maintain the OUR website and email system.
- Coordinate with the marketing personnel to develop advertisements, flyers, brochures, and news for/about undergraduate research.
- Work with the Director and Assoc. Director of OUR and the Honors Staff in planning and programming of events such as: the Proposal Writing Workshops, Research Receptions, research and scholarship panels, the annual Posters at the Capitol event, the End-of-Summer Research Symposia, and others that may need to be scheduled.
- Coordinate, promote, and track Research Intensive courses.
- Participate in recruitment activities for prospective students and their families.
- Participate in the OUR Annual Reports, OUR Self-Studies, external funding proposals, and Assessments.
- Coordinate with the Honors staff, various College and Departmental personnel, and students to facilitate and/or enhance opportunities for undergraduate research and scholarship.
- Develop new and creative ways to better serve student’s research needs.
- Work with the Director and Assoc. Director of OUR in other ways as may arise for the better functioning of the office.

Graduate assistants are able to tailor their experience working with the Office of Undergraduate Research to their particular interests and needs. The identified duties could be appropriate for the student’s graduate thesis research. Some examples of additional opportunities include:

- Teaching research and scholarship preparation to undergraduates
- Develop learning communities for scholars and researchers
- Advising of students seeking scholarship endeavors
- Coordinate discussions with faculty panels
- Coordinate student research retreats
- Work closely with select groups of Honors students to prepare them for post-graduate endeavors
- Design and implement additional programs, such as career development seminars, panel discussions, and social events

Supervisor: Thomas Kvale, Director, Office of Undergraduate Research
Time Commitment: 20 hours per week
Contract Dates: AY2011-12 and Summer 2012
Remuneration: Stipend plus tuition and fee coverage.
Contact Person: Thomas Kvale
Sullivan Hall, Rm 2140, MS504, Toledo, OH 43606
telephone: 419/530-2983 e-mail: undergradresearchs@utnet.utoledo.edu
http://www.utoledo.edu/honors/undergradresearch
Advisory Committee for Undergraduate Research

Advisory Committee Members for Undergraduate Research (ACUR)  
Membership AY 2014-2015

<table>
<thead>
<tr>
<th>College</th>
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<td>Adult &amp; Lifelong Learning</td>
<td>Mark Cuthbertson</td>
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<td>Robert Yonker</td>
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<td>Engineering</td>
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<td>2017</td>
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