

January 28, 2014

**Office of Undergraduate Research (OUR-UT)  
ANNUAL REPORT 2013**



THE UNIVERSITY OF  
**TOLEDO**  
1872

**Office of Undergraduate Research**  
MacKinnon Hall MK1010-A, H/S504  
2801 W. Bancroft St.  
Toledo, OH 43606-3390  
Phone: 419.530.2983  
Fax: 419.530.6032  
undergradresearch@utoledo.edu  
www.utoledo.edu  
www.utoledo.edu/honors/undergradresearch

Due Date of Report: Fall Semester 2013

Time Period to be covered in report: AY 2012-2013, Summer 2013

Project Title: Office of Undergraduate Research

Persons Completing Report: Thomas Kvale, Ph.D. (Director, Office of Undergraduate Research and Prof. of Physics)  
and Larry Connin, Ph.D. (Assoc. Director, Office of Undergraduate Research and Administrative Coordinator, Honors College)

### Summary Statement

OUR-UT has now completed its seventh year of existence and the OUR programs continued to receive healthy interest from the students and strong support from the faculty. This is reflected in the strong average FYSRE and USRCAP proposal review scores. We were invited to publish a vignette in the national Council on Undergraduate Research publication, *CUR Quarterly* based on the Posters at the Capitol event and interaction of our student researchers with state legislators. This year was also a year of transitions. OUR-UT moved from Sullivan Hall to MacKinnon Hall in the Fall and our graduate assistant, Jamie Teeple went to Ohio State to work on his Ph.D. degree. Replacing Jamie is Robbie Abdelhoq, who started at the beginning of Fall semester. Due to the retirement of the ARS course alpha code, ARS2980 was renamed UGR2980, UGR named for "Undergraduate Research".

Grant support: OUR-UT played a key supportive role for two state and national grants totaling about 1.5M\$ over their current duration. All of these grants benefited from OUR's summer seminar series UGR2980: *Issues in Research and Scholarship*, which concentrates on the safe and ethical conduct of research. Responsible conduct of research formal training is a high priority for state and national granting agencies such as the National Science Foundation. Individually, we were in the fourth year of the 1.53M\$ grant from the OBOR-funded Choose Ohio First Scholarship Program: "*Building Ohio's Sustainable Energy Future.*" (G. Martin P.I., with T. Kvale, a Co-P.I.) This grant involves collaboration between UT and BGSU to fund scholarships to students in the renewable energy area. A key component of this grant is the involvement of undergraduate students in research and this grant funded two research students (Tyler Kinner and Anthony Bova) in summer 2012. We were successful the renewal of the NSF-REU (Research Experiences for Undergraduates) grant in Physics and Astronomy (R. Irving, P.I. and T. Kvale, Co-P.I.). This grant funded students from across the nation to conduct research in physics and/or astronomy at UT. A key component of this grant is the opportunity for several REU participants to conduct collaborative research at UT and a national facility. The students prepare for research at UT, then conduct the experiments at the national facility then travel back to UT to analyze the data and finish the research project. This past summer, Dr. Kvale mentored and accompanied two students to the Nevada Terawatt Facility at the University of Nevada, Reno. All of the REU students were required to attend the UGR2980 presentations and OUR-UT coordinated with Residence Life to house these students together to create a Living/Learning Center during summer 2013.

This past year we have established the web homepage and mechanism for the UT Journal of Undergraduate Research (UT-JUR). We are planning for the inaugural publication of the UT-JUR spring semester 2014 and have identified and invited several students to submit articles for publication. This journal will be peer-reviewed and as such, articles will count as refereed publications in the authors' vita. Details of the journal are included in the Appendix.



Other objectives of the OUR-UT in the upcoming year include: 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; enhanced funding both internal and external (mainly through the NSF-REU program); grow OUR-UT programs (including the STARS); grow the Posters at the Capitol event; and increase research activities by UT undergraduates, including students in the arts and humanities.

## Major Activities

- **Proposals/Grants** (Proposal Summaries included in the Appendix)
  - Choose Ohio First Scholarship Program: “*Building Ohio’s Sustainable Energy Future*” (Co-Principal Investigator), OUR-UT to administer research positions/internships. 1.53M\$ OBOR. Collaborating institutions: UT and BGSU. funded, Year 4 of 5, 08/2009.
  - NSF-REU Physics and Astronomy (TJK Co-PI)
- **Undergraduate Research Programs** (Details in Appendix)
- **AY2012-13 Research Programs:**
  - 2 STARS participants (J. Rigsby AY12-13, J. Smithers, AY12-13, summer 2013)
  - 1 AYRP participant (Adam Wierville, summer 2013)
  - NCUR co-funded (with Honors) Details in the Appendix
  - Posters at the Capitol 2013 co-funded
- **Summer 2013 Research Programs:**
  - Selection committees met, March 2013.
  - Summer 2013 research Proposals reviewed: FYSRE (12 proposals), Toledo Internship (3 proposals), USRCAP (37 proposals). FYSRE and USRCAP selection committees rated the proposals on a scale of 1-5, with 5 being outstanding. They (in each program) were instructed to identify at most twelve proposals with a rating of 5 and at most four proposals with a rating of 4. There were no limits on the number of proposals that could be rated 1-3.
  - FSYRE (12 participants / 15 proposals) Total FYSRE Average Proposal Score: 4.2/5.0
  - UT-City of Toledo Internship Program (3 participants / 3 applications)
  - USRCAP (37 participants / 45 proposals) Total USRCAP Average Proposal Score: 4.2/5.0
  - End-of-Summer Undergraduate Student Research Presentations, July 31, 2013.
- **UGR2980: *Issues in Research and Scholarship*** course, summer session III. Average attendance: 40. Summaries of two key evaluation questions for the course are included in the Appendix.
- **Student Research Handbook AY2012-13** Published electronically. Paper copies available upon request from OUR-UT.
- Published a vignette article in the national CUR (Council on Undergraduate Research) Quarterly, Winter 2012 Issue. Details in the Appendix.
- **UT Presentations for undergraduate research opportunities:**
  - pre-med student meeting.
  - orientation of First Year Pharmacy students
  - various individual class presentations.
- **Student Government Research Survey** (27 responses). Survey summaries included in the Appendix.
- **Proposal Writing Workshops** (Sullivan Hall)
  - January 29, 2013 -- Arts, Humanities, Business, Education, and associated disciplines
  - January 30, 2013 -- Sciences, Engineering, Medicine, Pharmacy, and associated disciplines
- **Posters At The Capitol: Undergraduate Research in Northwest Ohio** (Details in Appendix)
  - Event date: April 09, 2013.
  - Students presenting:
    - BOSEF grant BGSU&UT (7 posters / 23 co-authors)
    - Bowling Green State University (7 posters / 18 co-authors)

- Heidelberg University (9 posters / 9 co-authors)
  - Ohio Northern University (3 posters / 5 co-authors)
  - The University of Findlay (16 posters / 49 co-authors)
  - The University of Toledo (10 posters/ 10 co-authors)
- Complete Book of Abstracts is available upon request
- **Office of Undergraduate Research Advisory Committee -- ACUR (AY2012-13)**  
Please see Appendix for ACUR details

## **Major expenditures for the period**

- Undergraduate Research Summer 2013 programs (grand total: \$ 168,100 )
  - OUR-UT (TOTAL): \$ 159,050
    - FYSRE: \$ 37,550
    - TolInterns: \$ 9,000
    - USRCAP: \$ 112,500
  - Faculty grants: \$ 250
  - Sullivan grants: \$ 4,800
  - Physics REU: \$4,000
- AYRP AY12-13 grant (A.W.): \$2,000
- STARS (J.R. & J.S.): \$2,000
- Posters at the Capitol: \$ 1,563
- CUR institutional membership: \$800
- Publication of the AY2012-13 Student Research Handbook was electronic this year, so no direct printing costs were incurred.

## **Assessment activities**

- The Assessment Report for AY2012-13/Sum2013 is included in the Appendix.

## **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:
  - Due to tax law changes, stipends may be considered federal taxable income. We increased the summer stipend to \$3,000 (from \$2,750) to help offset this change.
  - Summer research supplies budget procedure for individual projects needs to be modified due to the fiscal year falling in the middle of the summer research period.
  - 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.
  - To keep an accurate census of undergraduate research activities in individual faculty research, especially those supported by external funding agencies or volunteered time.
  - the need for advance knowledge of exact funding levels from all sources supporting undergraduate research.

## **Progress on goals set for AY2012-2013**

- Submitted a renewal proposal to the NSF-REU program in Physics & Astronomy
- Created a Research Travel Grant Program
- Perform complete Assessment Tasks
- OUR-UT is now funding the STARS program
- Increase Research Intensive courses

## **Goals for AY2013-2014**

- Launch the UT Journal of Undergraduate Research.

- Support proposals to be submitted to the National Science Foundation NSF-REU program and other external funding agencies.
  - Physics and Astronomy (TJK Co-PI -- Co-write and submit proposal)
  - Launch NASA Glenn Capstone Research Project.
  - Co-PI and contribute to the Howard Hughes Medical Institute (HHMI) grant proposal (D. Leaman, P.I.), Fall semester.
- Increase the number of undergraduate students involved in research.
- Produce a brochure describing the OUR-UT and research opportunities at UT

### **OUR-UT Office Organization**

- Director of Undergraduate Research (Prof. Thomas Kvale)
- Associate Director of Undergraduate Research (Dr. Larry Connin)
- Graduate Assistant
  - Jamie Teeple, AY2012-13, Sum 2013
  - Robbie Abdelhoq, AY2013-14, Sum 2014
- OUR-UT is housed in the Honors College, MacKinnon Hall MK1010-A

# **Appendix:**

## **Supporting Materials**

UT Journal of Undergraduate Research

Web homepage

Announcement

Author & Coauthor Responsibilities

Grant proposals -- Summaries (funded)

NCUR2013

CUR Quarterly Winter 2012 Vignettes

Posters at the Capitol: Undergraduate Research in Northwest Ohio

PATC2013

STARS and Other Academic Year Programs

OUR-UT Summer Research Participants

UGR2980 Summary

(Selected Questions, Q1, Q2, and Q9)

Research Evaluation Summary -- Students

Student Government Survey Fall 2012

OUR-UT Graduate Assistant Specifications/duties

OUR-UT Advisory Committee

OUR-UT Assessment AY2012-13, Summer 2013

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# Journal of Undergraduate Research

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Home > The University of Toledo Journal of Undergraduate Research

## The University of Toledo Journal of Undergraduate Research

The UT-JUR is dedicated to publishing scholarly work conducted by undergraduate students at The University of Toledo on a regular basis. The topics encompass all fields of endeavor present at UT.

### Announcements

*No announcements have been published.*

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# Journal of Undergraduate Research

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## UT- Journal of Undergraduate Research (UT-JUR)

The UT-JUR is dedicated to publishing scholarly work conducted by undergraduate students at The University of Toledo on a regular basis. The topics encompass all fields of endeavor present at UT. The governing publisher will be the University of Toledo Press. Undergraduate students should be first author, but the articles can have multiple authors at all levels (undergraduate, graduate, postdoc, faculty, etc.).

### Eligibility

- All UT undergraduates conducting research, creative activities, and/or other scholarly work (whether funded or not) are eligible to submit their work for publication.
- Non-UT undergraduate students conducting research, creative activities, and/or other scholarly work are eligible to submit their work for publication if their research was conducted at UT or mentored by a UT faculty member.

### Structure

- Editor: Director, Office of Undergraduate Research
- Editorial Board
  - Editor
  - Students interested in Publishing (number TBD)
  - Associate Director, Office of Undergraduate Research
  - Chair, Advisory Committee on Undergraduate Research
  - member from The University of Toledo Press.
  - Publishing Assistant -- Graduate Assistant in the Office of Undergraduate Research
- Frequency -- Annual in Spring Semester
- Professionally-peer reviewed articles
- Content
  - Undergraduate Research news and events
  - The number of selected research articles per publication is variable
- Format
  - Electronic
  - Open access
  - Limited number of paper copies for archives, development/promotion, etc.



UNDERGRADUATE RESEARCH

THE UNIVERSITY OF TOLEDO



THE UNIVERSITY OF TOLEDO

# Journal of Undergraduate Research

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October 2012

## Author & Coauthor Responsibilities

In this document, the word “research” also refers to “creative activity”.

Publishing in a professionally-refereed journal such as the *UT-Journal of Undergraduate Research (UT-JUR)* is a privilege and carries significant responsibility. By submitting manuscripts for consideration, the authors (first author and coauthors) and the faculty mentor endorsing this research affirm that this work conforms to the highest ethical standards of the Responsible Conduct of Research (RCR) code. The relevant points for publication are summarized below.

1. The research presented in the manuscript is original and/or builds or expands on previous research. The research must have been conducted by the author while the author was: i) a UT undergraduate student (on- or off-campus); ii) a non-UT undergraduate student conducting research at UT; or iii) a non-UT student mentored by a UT faculty member (off-campus).
2. If there are coauthors on the paper, each one should have made meaningful contributions to the work and should have had the opportunity to write/review/edit the manuscript. By the same token, all persons who made significant contributions to the work should be included as coauthors. Consistent with Point 1 above, the first author must have had undergraduate status when the research was conducted.
3. Each manuscript must have the endorsement of a faculty member (either UT or non-UT). The faculty member endorsing the manuscript must have full knowledge of all parts of the research even though they may or may not be identified as a coauthor.
4. This manuscript does not contain copied sections of previous publications without providing due citation of those publications. Likewise, all significant previous works are properly cited.
5. This manuscript is not being simultaneously submitted for publication in other journals.
6. If the research contains data, the data/results are honestly reported and not selectively reported or not reported depending on the point(s) the author(s) are making in the paper. Fabrication of data/results and/or theft of data/results are a violation of the RCR code, and therefore are *strictly forbidden* and may result in criminal and/or civil legal action.
7. All pertinent information (data, results, methodology, procedure, notes, etc.) of the research will be properly maintained and archived for a reasonable length of time.
8. The author(s) should alert the editorial board if the research contains patentable and/or proprietary material so appropriate courses of action are taken prior to publication.
9. If the *UT-Journal of Undergraduate Research* agrees to publish the manuscript, the author(s) will grant UT-JUR publication rights as indicated in the Copyright Agreement.



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## Instructions for students/authors:

Access: <http://www.utdl.edu/ojs/index.php/utjur/index>

1. At the top of the screen click “register” and fill out the form below with all the relevant information. During the registration process, you will be asked to choose your “role.” Be sure to choose “AUTHOR”
2. Once you are registered, you will receive a confirmation email with your login credentials. Store that information in a safe place
3. Once you arrive at the home screen, click on “new submission” and be sure that your research meets the requirements listed on the “submissions checklist.” Check of all boxes if the requirements are met.
4. Click “save and continue” and you will be taken to the next screen where you will be asked to upload your data file.
5. You will be asked to click “save and continue” again. The next screen will ask you to provide the submission’s metadata. Fill out the appropriate information in the boxes.
6. If there are supplementary files, you will be asked to upload them on the next screen.
7. Finally, you will arrive at the 5<sup>th</sup> and final step of the process and you will be asked to click “finish submission.”
8. You will receive a confirmation email confirming that your research has been submitted and you will be provided with a link that will allow you to track the progress of your submission.

Good Luck!

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# Journal of Undergraduate Research

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## Instructions for Readers ( a.k.a. Referees/Reviewers):

Access: <http://www.utdl.edu/ojs/index.php/utjur/index>

1. At the top of the screen click “register” and fill out the form below with all the relevant information. During the registration process, you will be asked to choose your “role.” Be sure to choose “Reader”
2. Once you are registered, you will receive a confirmation email with your login credentials. Store that information in a safe place
3. This registration will result in the reader (you) receiving the Table of Contents for each new issue once it becomes available.
4. This list allows the journal to claim (and assign) a certain level of support or readership for each piece of literature.
5. On the right side of the screen, you will notice a “Notifications box” with the option “view.”
6. This option will allow you to “view” the selections that have been assigned to you for review.
7. Once you have reviewed the article, there will a feedback option available and finally, just click submit.

Good Luck!

FUNDED

Ohio Board of Regents

**Choose Ohio First Scholarship Program: “*Building Ohio’s Sustainable Energy Future*”**

Proposed Duration: 60 months

Starting Date: August 01, 2009

Amount Requested: \$1,563,005 (OBOR); \$1,275,381 (UT/BGSU/NSCC/OWENSCC/TerraCC)

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.

FUNDED

National Science Foundation

***“REU Site: Research Experiences for Undergraduates  
in Physics and Astronomy at The University of Toledo”***

Proposed Duration: 36 months

Starting Date: May 01, 2013

PHY-1262810

Amount Requested: \$300,000 (NSF); \$105,017 (UT)

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.

NCUR 2013



Anthony Bova (Chemistry), *Improved Synthesis of Chromium (III) Tetrphenylporphyrin Chloride – A Precatalyst for Carbonylation of Biomass Monomers*

Bradley Summer (History), *From Fifteen to Ten Thousand: the Electric Auto-Lite Strike of 1934*

David Folck (Art), *LANG LEBEN DIE INSEKTEN!*

Lakshmi Radhakrishnan (Biological Sciences), *The Regulation of Macrophage Function Using Chemotherapeutic Drugs*

Omar Subei (Chemistry), *Investigation of the “MCG” light chain dimer of Bence-Jones protein*

Zachary Dehm (Religious Studies), *Restored Collegiality: Factors Leading to a Renewed Episcopacy in Lumen gentium*

Viralkumar Upadhyay (Pharmaceutical Science), *Effects of Dopamine on Structure and Function of Primary Cilia*

## CURQ Vignettes: “Connecting Undergraduate Research to State Legislators

### **Posters at the Capitol: Undergraduate Research in Northwest Ohio**

Thomas Kvale, Larry Connin, Jamie Teeple, *The University of Toledo*,  
[thomas.kvale@utoledo.edu](mailto:thomas.kvale@utoledo.edu)

Marie Loudon-Hanes, Bethany Henderson-Dean, Michael Edelbrock, *The University of Findlay*

Since 2008, The University of Toledo and The University of Findlay have been the primary organizers of the annual “Posters at the Capitol: Undergraduate Research in Northwest Ohio” event at the Ohio Statehouse in Columbus (PATC). This event offers undergraduate students the opportunity to directly present their research to Ohio legislators and demonstrate how their research impacts Ohio. As examples of the networking opportunities created by PATC, in 2010 University of Toledo economics student Anthony Russo met with Senator Sue Morano of the 13th district to discuss his research project: "*A Cost-Benefit Analysis of a Community Recreation Center for the City of North Ridgeville, Ohio.*" In this study, Russo assessed the holistic societal advantages of establishing a government-subsidized recreation center in that community. Senator Morano agreed to forward Russo's research to the Ohio Department of Health. Another example of the student-legislator interaction occurred at this year's event (2012) when students at UT and Bowling Green State University presented their research about wetland restoration in a tributary creek of Lake Erie to state Representative Matthew Szollosi, who then pledged his full support of the project. Although the outcomes of these two projects are still pending, it is evident that Posters at the Capitol affords students opportunities to influence meaningful societal change.



# CURQ Vignettes

## Additional Examples of Connecting Undergraduate Research to State Legislators

### Posters at the Capitol: Undergraduate Research in Northwest Ohio

Thomas Kvale, Larry Connin, Jamie Teeple, *The University of Toledo*  
Marie Loudon-Hanes, Bethany Henderson-Dean,  
Michael Edelbrock, *The University of Findlay*  
thomas.kvale@utoledo.edu

Since 2008, The University of Toledo and The University of Findlay have been the primary organizers of the annual "Posters at the Capitol: Undergraduate Research in Northwest Ohio" event at the Ohio Statehouse in Columbus (PATC). This event offers undergraduate students the opportunity to directly present their research to Ohio legislators and demonstrate how their research impacts Ohio. As examples of the networking opportunities created by PATC, in 2010 University of Toledo economics student Anthony Russo met with Senator Sue Morano of the 13th district to discuss his research project: "A Cost-Benefit Analysis of a Community Recreation Center for the City of North Ridgeville, Ohio." In this study, Russo assessed the holistic societal advantages of establishing a government-subsidized recreation center in that community. Senator Morano agreed to forward Russo's research to the Ohio Department of Health. Another example of the student-legislator interaction occurred at this year's event (2012) when students at UT and Bowling Green State University presented their research about wetland restoration in a tributary creek of Lake Erie to state Representative Matthew Szollosi, who then pledged his full support of the project. Although the outcomes of these two projects are still pending, it is evident that Posters at the Capitol affords students opportunities to influence meaningful societal change.

### From the Classroom to the Assembly Floor: Making Students' Research Count

Brianne Gilbert and Fernando Guerra, *Loyola Marymount University*  
brianne.gilbert@lmu.edu

While provisions of the federal Voting Rights Act continue to guarantee equal voting rights, a fundamental question remains unanswered: While all citizens have an equal right to the ballot, do all citizens enjoy equal access to the ballot box? Researchers at Loyola Marymount University identified a set of characteristics by which to evaluate the "accessibility" of precincts in the city of Los Angeles to determine if differences exist in the accessibility of polling places. Several hundred polling places were selected randomly and teams of student researchers were assigned to a subset from this selection. Each team evaluated the precinct using a one-page checklist of criteria; they also obtained additional information by speaking with poll workers at the sites on Election Day (March 4, 2003). After analyzing the data, researchers determined that many areas did not meet the accessibility requirements and put potential voters at a disadvantage. Reports from the findings were distributed to a variety of individuals, including Assemblywoman Jenny Oropeza, who used the data as the catalyst for Assembly Bill 177, which required the Voter's Bill of Rights be posted at every polling place in the state of

California. The bill passed with a majority vote and is now Section 2300 of the CA State Elections Code. By conducting this research, students saw how their data could be an impetus for change that directly affected the voters in their state.

### Connecting Undergraduate Research to State Legislators: A Model Strategy

Karen G. Havholm, *University of Wisconsin-Eau Claire*  
KHAVHOLK@uwec.edu

The University of Wisconsin System recently held its ninth "Posters in the Rotunda" event at the state Capitol in Madison. This annual event showcases undergraduate research across the disciplines through poster presentations, and it also provides a chance for the 26 campuses in the system to connect with legislators. Through collaboration among the chancellor's office, the Alumni Association, and the undergraduate research office, UW-Eau Claire has developed a strategy for participation in this annual event. In addition to inviting legislators to visit with their student constituents in the area where posters are displayed, each year our chancellor leads a small group of students, faculty, and alumni on visits to each of our area legislators. The basic message to be shared is developed in advance. It includes thanks for issues on which the legislators supported the university in the previous year and then identifies three items for which the campus needs their support in the near future. These main points are provided in written form, but the conversation during each half-hour visit is free-form. The students, faculty, and alumni are not schooled in advance on what to say, and it is often their spontaneous descriptions of what is actually happening (or not happening) on campus in response to state-level actions that elicits the most attention from legislators. These visits have been important to the development of rapport between our campus leadership and area legislators. In some years, items on the "please help" list from previous years move to the "thank you" list, demonstrating that this has been a successful strategy. Organizers in the UW System believe the Posters in the Rotunda event has promoted a better understanding of the role of undergraduate research in maintaining a vibrant research culture at the regional campuses, which has led to some additional support from legislators for system initiatives.



## Posters at the Capitol: Undergraduate Research in Northwest Ohio

**April 09, 2013**

(Location moved to the Statehouse Gallery just before the event)

### Schedule of Events Statehouse Atrium April 09, 2013

- 10:00am - 10:30am Arrive and set-up posters
- 10:30am - 12:00pm Morning session - present research
- 12:00pm - 1:00pm Lunch
- 1:00pm - 1:30pm Statehouse & Capitol tours
- 1:30pm - 3:00pm Afternoon session - present research
- 3:00pm - 3:30pm Reception and Group photo
- 3:30pm - 4:00pm Remove posters and leave



**PATC 2013 Group Photo**

## Students, Research Presentation Titles (Faculty Mentor)

### Multi-Institution Collaborative Research

#### Choose Ohio First Scholarship Program: “Building Ohio’s Sustainable Energy Future”

**Jennifer Collier, Christine Hoholski, and Chad McElvany**, *A Multifaceted Comparison of Electric Power Generation Methods* (Drs. Brian Randolph and Thomas Kvale)

**Jessica Ezzie and Issac Burns**, *Energy Comparison, Conventional Used Resources vs. Wind Energy* (Drs. Brian Randolph and Thomas Kvale)

**Tyler Kinner**, *Review of Photovoltaics Research at The University of Toledo*, (Drs. Robert Midden and Geoffrey Martin)

**Meri Mullins**, *Energy Sustainability In Primary Education* (Dr. Robert Midden)

**Stephanie Parrott**, *Vertical Axis Wind Turbines (VAWT) Overview and Considerations* (Drs. Brian Randolph and Thomas Kvale)

**Bryce Schide**, *Does Wind Energy Pose a Threat to Birds and Bats? Investigating a Wind Energy Concern at Clay High School in Oregon, Ohio* (Dr. Thomas Kvale)

**Nathan Reaver, Zachary Reaver, Anne Doerr, Shelly Trivisonno, Jeffery Beegle, Stephanie Clendenen, Anthony Bova, Alex Williams, Katie Burns, Lauren Marshall, Clara Bittner, Cassandra Eilerman, Brendan Campana, Mark Sulin, and Emily Potter**, *Energy Production and Water Quality Improvement by Means of Human-constructed Harvested Wetlands* (Drs. Geoffrey Martin and Daryl Dwyer)

### Bowling Green State University

**Hannah Duffy**, *Determining a Developmental Window for the Effect of Polychlorinated Biphenyl (PCB) on Ultrasonic Vocalization (USV) in Sprague Dawley Rat Pups* (Dr. Lee Meserve)

**Kali Irvin, Chelsea Calvert, and Rachel Wiemken**, *Water Quality in the Portage River Watershed: The Effects of Fertilizer and Pollutants* (Dr. Robert Midden)

**Alexa Johnson**, *Synthesis and Design of Metal-Organic Frameworks and Polyhedra for the Trapping of Retinal* (Dr. Mikhail Zamkov)

**Alexandra Lahey and Chelsea Standley**, *The Impact of Consumption of Women’s Magazines on College Students’ Perceptions of Sexual Relationships* (Dr. Laura Landry-Meyer)

**Scott Lambright, Bryan Smith, Pavel Munoz, Alexa Jonhson, Bryan Mellot, Erich Kinder, Geethika Liyanage, and Kyla Huband**, *Development of All-Inorganic Nanocrystal Solids for Light-Harvesting and Light-Emitting Application* (Dr. Mikhail Zamkov)

**Katie Moon**, *Synthesis and Design of Metal-Organic Frameworks and Polyhedra for the Trapping of Retinal* (Dr. Jeremy Klosterman)

**Chelsea Standley and Alexandra Lahey**, *The Impact of Popular Media on College Students’ Perceptions of Romantic Relationships* (Dr. Laura Landry-Meyer)

### Heidelberg University

**Megan Brown**, *Sandusky River Watershed Coalition: Senior Internship advised by Mrs. Cindy Brookes, Watershed Specialist* (Dr. Amy Berger)

**Susan Daniel**, *Invasive Species in Lake Erie: The Hunt for the New Zealand Mud Snail* (Dr. Ken Krieger)

**Jeffrey Gordon**, *A Radio Telemetry Study on the Effects on the Homing Instincts of Eastern Box Turtles* (Dr. Ken Baker)

**Allison Kennedy**, *The Presence of Bacteriophages in Raw Sewage* (Dr. Susan Carty)

**Andrew Leis**, *Seasonal Variation in Physicochemical Properties of a New Artificial Pond in Northwest Ohio at Heidelberg University Campus* (Dr. Amy Berger)

**Joshua Olewiler**, *The Effect of Various Extracts of Ailanthus altissima on the Growth of Pathogenic Bacteria* (Dr. Susan Carty)

**Jeff Peck**, *A Comparison of Water Quality Above and Below Hoover Reservoir Dam, Franklin Co., Ohio* ()

**Ryan Smith**, *The Relationship of the Age of Voters and their Level of Political Interest in Presidential Elections from 1992 to 2012 in a Northwestern Ohio Community* (Dr. John Bing)

**Tori Vaccariello**, *Internship at Lorama Chemicals* (Dr. Amy Berger)

### Ohio Northern University

**Paige Garber** and **Nathaniel Mabe**, *Identification of “Silent” 5HT<sub>1b</sub> Receptors in the Mouse Aorta* (Dr. Boyd Rorabaugh)

**Mohamad Hassoun** and **Deirdre Myers**, *Custom-Developed Reverse-Phase HPLC Method for Simultaneous Quantification of Vitamins C and K3 in Compounded Capsules* (Dr. Yousif Rojeab)

**David Reeping**, *K-12 Engineering: Effect of a Design Lab on Student Learning* (Dr. Kenneth Reid)

### The University of Findlay

**Lauren Brassfield**, **Taylor Mathias**, **Keri Seel**, **Jenna Seliskar**, and **Christina Terry**, *Reality TV: Has it become a mainstream advertising opportunity?* (Dr. Chris Ward)

**David Conti**, **Graham Rossi**, and **Ailsa Hershaw**, *Effects of Cadmium on the Cell Cycle* (Dr. Michael Edelbrock)

**Kelci DeVine**, **Erin Dunlap**, **Alicia Gottfried**, **Gabrielle Umbs**, **Elizabeth Printz**, **Alisha Holman**, **Meghan Brownell**, and **Amanda Harter**, *Occupational Therapy & Participatory Action Research: Partnering to Meet the Needs of Impoverished Individuals* (Drs. Laura Schmelzer, and Theresa Leto)

**Eden Dulka**, **Mollie Burwinkel**, **Glynnis Prigge**, **Marie McKinnon**, and **Matt Grisnik**, *The Establishment of a Cell Line from Ambystoma (Caudata: Ambystomidae) Salamanders* (Dr. Jessica Wooten)

**Ingrid Godfrey**, **Kayla Huffman**, and **Shelbie Mosley**, *Identification of Barriers to Gene Flow in Three Slimy Salamander Species (Caudata: Plethodontidae) in the Coastal Plain in the Southeastern United States* (Dr. Jessica Wooten)

**Jessica Gordon**, **Courtney Timmons**, and **Cameron Koepp**, *Phylogeny of Zoanthids (Phylum: Cnidaria; Order Zoantharia) Generated from Nuclear and Mitochondrial Sequences* (Dr. Jessica Wooten)

**Cassie Henninger**, **Alixandra Borgert**, and **Danielle Hoffman**, *Mutagenic Effects of Cadmium on Mitochondrial and Nuclear DNA* (Dr. Michael Edelbrock)

**Aimee Jones** and **Katharine Kehrt**, *Detection of Calicivirus in Felines from Two Shelters in Northwest Ohio* (Dr. Jessica Wooten)

**Kaleigh Kenny** and **Kody Bennett**, *Mutation Analysis of the HPRT Locus in Response to Cadmium and Fungal Extract Exposure* (Dr. Michael Edelbrock)

**Brandy Lawrence** and **Tanner Walls**, *Four New Species of Fungi in the Highly Diverse Genus Plagiostoma from Japan (Gnomoniaceae, Diaporthales)* (Dr. Donald Walker)

**Melanie Lowers**, **Dylan Long**, **Daniel Weiland**, and **Macey Brandeberry**, *Effects of caffeine on cancer cells* (Dr. Xu Lu)

**Carolyn Lund**, **Kelley Black**, and **Callayn Paul**, *Development of a Caprine Lymphocyte Model to Evaluate Environmental Exposure* (Dr. Michael Edelbrock)

**Taylor Tweed** and **Mason McCool**, *The Impact of Septic System Leachate on Microbial Diversity* (Dr. Bethany Henderson-Dean)

**Mariah Vasquez** and **Samuel Gothke**, *In Vitro Evaluation on Possible Genotoxic Effects of Loperamide* (Dr. Alexander Vaglenov)

**Sarah Waibel**, *HPLC Assays of Bioactive Fungal Extracts for Chemotherapeutic Agent Development* (Dr. Jeffrey Frye)

**Jordan Wanner** and **Samuel Gothke**, *Investigation on Single and Combined Genotoxic Effects of Omeprazole and Bleomycin* (Dr. Alexander Vaglenov)

### **The University of Toledo**

**Nicole Carr**, *Examining the Molecular Mechanisms of Behavior: A Characterization of FIP3/4 Function in the C. elegans Nervous System* (Dr. Robert Steven)

**Shin Hae Cho**, *Developing Calcium Alginate Nanoparticles with Tunable Drug Release Properties using Self-assembling Mixtures* (Dr. Jerry Nesamony)

**Tyler Kinner**<sup>†</sup>, *Synthesis and Characterization of Iron Sulfide Quantum Dots* (Dr. Randy Ellingson)

**Michael Koludrovich**, *Nanoparticle Reinforced Metal Composites Prepared by Electrocodeposition* (Dr. Yong Gan)

**Chad McElvany**<sup>†</sup>, *Computer Modeling of Vane Shapes for a Vertical Axis Wind Turbine* (Drs. Thomas Kvale and Brian Randolph)

**Joseph Ozbolt**, *On the Theory of Multilayered Thin-Film Radiation Detectors* (Dr. Victor Karpov)

**Robert Phillips**, *Economic and Environmental Evaluation of Reducing Potable Water Use by Rainwater Harvesting* (Dr. Defne Apul)

**Mina Rizk** and **Timothy Bodie**, *Individualism and Collectivism within Different Cultural Groups* (Dr. Yueh-Ting Lee)

**Nader Rouholfada**, *Detoxification of Alcohol by Sulfation: A Comprehensive Analysis of the Alcohol-sulfating Activity of Human and Zebrafish Cytosolic Sulfotransferases* (Dr. Ming Liu)

**Joshua Smith**, *Relationship Between Enzyme Properties and Disease Progression in Canavan Disease* (Dr. Ron Viola)

<sup>†</sup> Students were scholarship recipients in the Choose Ohio First Scholarship program “Building Ohio’s Sustainable Energy Future”.

## 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 AY2012-13

NAME	Department	Research Title (Faculty Mentor)
Jimmy Rigsby	Kinesiology	<i>Effects of Low Intensity Resistance Training with High and Low Blood Flow Occlusion Pressures on Endothelial Function</i> (Barry Scheuermann)
Jacob Smithers	Biological Sciences	<i>The Role of Sas-4 Interaction With <math>\gamma</math>-tubulin in Centrosome Biogenesis</i> (Tomer Avidor-Reiss)

### Summer 2013

Jacob Smithers	Biological Sciences	<i>The Role of Sas-4 Interaction With <math>\gamma</math>-tubulin in Centrosome Biogenesis</i> (Tomer Avidor-Reiss)
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NAME	Department	Research Title (Faculty Mentor)
Adam Wierwille	Physics & Astronomy	<i>Design, Installation, and Operation of a PV Atmospheric Conditions Monitoring Station</i>



# The Office of Undergraduate Research Summer Research Program Participants, 2013



THE UNIVERSITY OF  
**TOLEDO**  
1872

**Office of Undergraduate Research**  
Sullivan Hall SL2140, M/S504  
2801 W. Bancroft St.  
Toledo, OH 43606-3390  
Phone: 419.530.2983  
Fax: 419.530.6032  
undergradresearch@utoledo.edu  
www.utoledo.edu  
www.utoledo.edu/honors/undergradresearch

NAME USRCAP	Department	Research Title (Faculty Mentor)
Olivia Akah	Med. and Bio. Chem.	<i>Synthesis of largazole analogues with modified surface recognition hydrophobic cap groups</i> (Viranga Tillekeratne)
Samuel Arnold	History	<i>Three Pragmatic Sisters: An Observation Concerning Simplicity and Science in the Agriculture and Worldview of American Indians</i> (Cynthia Ingham)
Yasmine Ayoub	Biological Sciences	<i>Role of ECGC in suppression of chemokines and cytokines induced by dsRNA and ODN</i> (Malathi Krishnamurthy)
Omar Badawi	Chemistry	<i>Synthesis and Evaluation of Magnetic Ionic Liquid Extraction Solvents in Dispersive Liquid-Liquid Microextraction</i> (Jared L. Anderson)
Nuray Baylan	Bioengineering	<i>Bone Morphogenetic Protein-2 Incorporated Polycaprolactone-collagen Scaffold as an Injectable Bone Fracture Augmentation Material</i> (Eda Yildirim-Ayan)
Trisha Belanger	Rehab. Services	<i>The Voices of Love: an acoustic analysis of emotional voice quality</i> (Caroline Menezes)
Callan Bialorucki	Bioengineering	<i>Effect of Extracellular Matrix Mineralization on Mechanical Properties of a Novel Injectable Composite Bone Tissue Scaffold Material</i> (Eda Yildirim-Ayan)
Panagiotis Bordovalos	Environ. Sci.	<i>Examining the Karst Features of Castalia Ohio</i> (Donald J. Stierman)
Eric Broz	Art	<i>My Hero! The Idolization of the Heroic Archtype</i> (Dan Hernandez)
Nicole Carr	Biological Sciences	<i>Examining the Molecular Mechanisms of Behavior: An Analysis of FIP3/4 Function in the C. elegans Nervous System</i> (Robert Steven)
Marcus Cluse	Chemistry	<i>Cyclopeptide Alkaloid Synthesis</i> (Steven Sucheck)
Luke Cousino	Environ. Sciences	<i>Modeling the Effects of Climate Change on Sediment and Phosphorus Concentrations in the Maumee River Watershed</i> (Richard Becker)
Jason Davis	Chemical Eng.	<i>Antifouling Properties of Polyphenol-Ferrite Coatings</i> (Dong-Shik Kim)
Crystal Esquilin	Art	<i>Summer Session in Japan: Japanese Architectural Photo-book</i> (Arturo Rodriguez)
Ryan Fashempour	Kinesiology	<i>The Metabolic Effects of Taurine Supplementation on Volume of Oxygen Uptake</i> (Barry W. Scheuermann)
Abril Galang	Physics and Astro.	<i>Carbon nanotubes and CdTe photovoltaics</i> (Michael Heben)

Pearl Gambrell	Japanese	<i>What can Lolita Culture tell us about the direction of Japanese Culture?</i> (Joseph Hara)
Erin Gordon	Chemical Eng.	<i>Static Mixing Spacers for Spiral Wound Modules</i> (Glenn Lipscomb)
Neil Hetrick	German	<i>Foreign Language Curricula Project</i> (Friederike Emonds)
Yonggil Jang	Bioengineering	<i>Examination of Drug Carrying Ability of Midi-GAGR through the Blood Brain Barrier</i> (Joshua Park)
Nathan Jones	Mathematics	<i>Classification of Six-dimensional Lie algebras</i> (Gerard Thompson)
Ashley Keenan	Biological Sciences	<i>Neuronal Guidance Signaling in Brain Tumor Invasion / SLIT-ROBO Pathway and TUBB3 in Brain Cancer</i> (Guofa Liu)
Tyler Kinner	Physics & Astro.	<i>Synthesis and Application of Earth-Abundant and Environmentally-Benign Nanocrystals for Photovoltaic Devices</i> (Randy J. Ellingson)
Luke Kwiatkowski	Math., Physics	<i>An Investigation into the Geometric and Topological Invariants of Gravitational Lenses</i> (Mao-Pei Tsui)
Eleesha Lockett	Japanese	<i>Japan as One of the Healthiest Countries in the World: How Food, Media, and Public Opinion Contribute to a Healthy Diet</i> (Roberto Padilla)
Makayla Lockett	English Language	<i>Second Language Acquisition: A Closer Look at Complete Language Immersion Abroad</i> (Xiao Mingli)
Anna Mangan	Rehab. Sciences	<i>Phonetic Analysis of Speech Errors in Childhood Apraxia of Speech - A Single Case Study</i> (Caroline Menezes)
Darian Marinis	Environ. Sciences	<i>Characterization of High and Low Quality Dry Sand Prairie Soil for Restoration Assessment</i> (Michael Weintraub)
Sarah McMasters	Biological Sciences	<i>Location of MUA-1 Transcription Factors in Caenorhabditis elegans</i> (John Plenefisch)
Kelley Moote	Rehab. Sciences	<i>Articulation errors in a person with Apraxia confounded with Broca's Aphasia: A new method to study articulation.</i> (Caroline Menezes)
James Moriarty	Environ. Sciences	<i>Have fish communities in the Ottawa River changed following a decade of restoration projects and what are the benefits and downfalls of two different fish capturing methods used to evaluate such changes?</i> (Johan F. Gottgens)
Tina Sherman	Rehab. Sciences	<i>Articulation errors in persons with Broca's aphasia and Apraxia: An articulatory analysis.</i> (Caroline Menezes)
Christian Siebenaler	Biological Sci.	<i>Swapping the Tail of Intermediate Filament IFA-2 with the Tail of Intermediate Filament IFA-3 in Caenorhabditis elegans to Determine Genetic Similarity in the Structure of Intermediate Filaments</i> (John Plenefisch)
Jacob Smithers	Biological Sciences	<i>The Role of Sas-4 Interaction With <math>\gamma</math>-tubulin in Centrosome Biogenesis</i> (Tomer Avidor-Reiss)
Joshua Staffeld	Chemistry	<i>Development of a Metal-Free, Aerobic Oxidation of Azolines to Azoles</i> (Kana Yamamoto)



Venkat Vaddamani	Kinesiology	<i>The Effect of a Pre-exercise Taurine Supplement on Muscle Fatigue and Muscle Adaptations During High Intensity Interval Training</i> (Barry Scheuermann)
Adam Wierwille	Physics & Astro.	<i>“Design, Installation, and Operation of a PV Atmospheric Conditions Monitoring Station”</i> (Randy Ellingson)
Jon Wimer	Bioengineering	<i>High Yield Production of Ketose Sugars Through Reactive Extraction: Evaluation of Mixed Sugar Extraction and Separation</i> (Patricia Relue)

NAME	Department	Research Title (Faculty Mentor)
<b>FYSRE</b>		
Marcus Beck	Civil Engineering	<i>Green Storm Water Infrastructure at UT</i> (Cyndee Gruden)
Orette Clark	Biological Sciences	<i>Suppression of gene expression in T Cells with a novel chemotherapeutic compound</i> (Anthony Quinn)
James Dunaway	Chemistry	<i>Total Synthesis of Antitumor Antibiotic Derhodinosylurdamycin A</i> (Jianglong Zhu)
Samuel Johnson	Chemistry	<i>The Synthesis and Application of a Biotin-conjugated Ebselen Probe</i> (Steve Sucheck)
Aaron Lucius	Environ. Sciences, Biol. Sci.	<i>Sustainability and Environmental Impact: Research, Development and Implementation of the Barrel-Ponic System</i> (Page Armstrong)
Rachel Opperman	Chemistry	<i>The Fermentation, Isolation, and Purification of Microbes and Polysaccharides</i> (Peter Andreana)
Sierra Parker	Chemistry	<i>Metal-Free, Aerobic Dehydrogenation of 1,3,5-Pyrazolines, 1,4-Dihydropyridines, and 3,4-Dihydropyrimidin-2(1H)-ones</i> (Kana Yamamoto)
LaVelle Ridley	English	<i>Reconstructive Imagination of the Later Poetry of Herbert Woodward Martin, 1980-2008</i> (Carmen Phelps)
Susan Salari	Chemistry	<i>A Comparison of Lipid A structures present in LPS of Burkholderia Pseudomallei and Burkholderia Thilandensis</i> (Dragan Isailovic)
Alexandra Schwann	Bioengineering	<i>Measurement of Sugar-Boronic Acid Binding Affinity and Development of a Mathematical Binding Model</i> (Patricia Relue)
Alexander Wisniewski	Biological Sci.	<i>The role of CEACAM1 in fatty liver disease</i> (Sonia Najjar)
Jennifer Collier	Civil Engineering	<i>Environmental Impact Comparison of Earth Abundant Environmentally Benign Photovoltaic Technologies to Current Photovoltaic Technologies</i> (Defne Apul)

NAME	Department	City Office
<b>TolInterns</b>		
Torre Benzing	Public Administration	Findlay
Joshua Egler	Political Science	Toledo - Prosecutor's Office
Kirsten Long	Political Science	Toledo - Prosecutor's Office

## UGR2980: Issues in Research and Scholarship

(Summer Semester III, 2013)

### Topics and Speakers

Class Meetings: Thursdays, 9am-10am (6/3 – 8/5)

Location: Sullivan Hall (SL), Rooms 3050-3060-3070

All presentations are scheduled for Thursdays, Third Floor of Sullivan Hall.

May 30	Welcome Summer Schedule & Procedures Laboratory Safety Pizza Lunch	<b>Lakeesha Ransom</b> , Dean, Jesup Scott Honors College <b>Thomas Kvale</b> , Director, Office of Undergraduate Research <b>Heather Lorenz</b> , Office of Safety & Health
June 06	Research Ethics and Compliance	<b>Walter Edinger</b> , Office of Research & Sponsored Programs
June 13	Adv. Research in the Library	<b>Wade Lee</b> , University Libraries
June 20	Math in Acad. & Ind. Research	<b>David Corliss</b> , PhD Astrophysics and Ford Motor Company
June 27	Plagiarism and Acad. Honesty	<b>Barbara Schneider</b> , Director, UT Writing Center
July 04	Independence Day Holiday	No presentation
July 11	Ethics in Academia & Research	<b>Jamie Teeple</b> , Grad Assistant, OUR-UT
July 18	Business Prospects and Patents	<b>Mark Fox</b> , Office of Research & Sponsored Programs <b>Lakeesha Ransom</b> , Dean, Jesup Scott Honors College
July 25	Summer Recap & Summation	<b>Thomas Kvale</b> , Director, Office of Undergraduate Research <b>Jamie Teeple</b> , Graduate Assistant, OUR-UT
August 01	<b>Summer Research Presentations (Sullivan Hall):</b>	
	• 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
	• 12:15pm - 1:00pm	Pizza Lunch and Poster Session 2
	• 1:00pm - 3:00pm	Oral Session 2

**UGR2980 Course Summary Questionnaire 2013**  
 (Selected Questions, Q1, Q2, and Q9)  
 Office of Undergraduate Research (OUR-UT) Summer Research Programs  
 The University of Toledo

1. Is research just an enhanced classroom experience or is it something different?  
 a. 18 an enhanced classroom experience      b. 73 something different
2. What are the ramifications of your answer to the above question? This could involve: ethics issues, budgetary concerns, learning outcomes/expectations, etc.

Many responses with research having more serious consequences than in academia.

9. Listed below are examples that are unethical (or highly questionable) practices in research. Please rank them for seriousness, with **1 being the least serious** infraction and **5 being the most serious** infraction. If you think that that practice is **OK**, write **0** or “N/A” as your response.
  - \_\_\_\_\_ putting your friend as a co-author on a research publication
  - \_\_\_\_\_ fabricating data
  - \_\_\_\_\_ deleting data because they didn't fit the preconceived theory
  - \_\_\_\_\_ not citing previous work and/or not citing competitor's work
  - \_\_\_\_\_ submitting the same data/paper to multiple journals
  - \_\_\_\_\_ not keeping a good, complete research journal
  - \_\_\_\_\_ plagiarizing work/data
  - \_\_\_\_\_ allowing your relationship with co-researchers to become personal

Summary of Q9:

Practice	putting your friend as a co-author	fabricating data	deleting data	not citing previous work	submitting the same data/paper	not keeping a research journal	plagiarizing work/data	personal relationships
average	2.48	4.53	4.16	3.59	1.56	2.16	4.44	1.52
Number answering N/A or blank	3	0	2	0	2	2	0	1

## RESEARCH PROGRAM EVALUATION - STUDENT

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

**2013**

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.

**FYSRE                  USRCAP                  TollInterns                  BOSEF                  Other (Name):**

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

<b>Definitely Yes</b>				<b>Neutral</b>				<b>Definitely No</b>
1	2	3	4	5	6	7		

FYSRE Average: 1.6    USRCAP Average: 1.6

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

<b>Learned a Lot</b>				<b>Neutral</b>				<b>Not Worth Much</b>
1	2	3	4	5	6	7		

FYSRE Average: 1.1    USRCAP Average: 1.2

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

<b>Far above my level</b>				<b>About Right</b>				<b>Far below my level</b>
1	2	3	4	5	6	7		

FYSRE Average: 2.4    USRCAP Average: 3.0

**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?**

<b>Very skilled/knowledgeable</b>				<b>Neutral</b>				<b>Not very skilled/knowledgeable</b>
1	2	3	4	5	6	7		

FYSRE Average: 4.0    USRCAP Average: 4.4

**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?**

<b>Very skilled/knowledgeable</b>				<b>Neutral</b>				<b>Not very skilled/knowledgeable</b>
1	2	3	4	5	6	7		

FYSRE Average: 2.1    USRCAP Average: 2.2

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

1	2	3	4	5	6	7
0-1hrs/wk	1-2 hrs/wk	2-3 hrs/wk	3-4 hrs/wk	4-5 hrs/wk	5-6 hrs/wk	>6 hrs/wk

FYSRE Average: 4.4    USRCAP Average: 3.8

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

<b>Very Helpful</b>				<b>Neutral</b>				<b>Not Helpful</b>
1	2	3	4	5	6	7		

FYSRE Average: 2.4    USRCAP Average: 2.0

8. How do you rate your research experience in terms of the freedom you had to do things your own way?

<b>None: I did what I was told</b>			<b>About Right</b>				<b>Too much: I got lost</b>
1	2	3	4	5	6	7	

FYSRE Average: 3.9 USRCAP Average: 3.8

**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?

<b>Definitely Yes</b>			<b>Neutral</b>				<b>Definitely No</b>
1	2	3	4	5	6	7	
--- N/A							

FYSRE Average: 1.4 USRCAP Average: 1.1

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](mailto:undergradresearch@utoledo.edu)) **or by campus mail:**

Office of Undergraduate Research  
 The University of Toledo  
 Sullivan Hall (SL1120), Mail Stop 504  
 Toledo, Ohio 43606





THE UNIVERSITY OF  
**TOLEDO**  
1872

**Office of Undergraduate Research**  
Sullivan Hall SL2140, M/5504  
2801 W. Bancroft St.  
Toledo, OH 43606-3390  
Phone: 419.530.2983  
Fax: 419.530.6032  
undergradresearch@utoledo.edu  
www.utoledo.edu  
www.utoledo.edu/honors/undergradresearch

## 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

<u>Supervisor:</u>	Thomas Kvale, Director, Office of Undergraduate Research
<u>Time Commitment:</u>	20 hours per week
<u>Contract Dates:</u>	AY2011-12 and Summer 2012
<u>Remuneration:</u>	Stipend plus tuition and fee coverage.
<u>Contact Person:</u>	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  
(revised 01/2012)

**Charge:**

To oversee, advise, and assist the Office of Undergraduate Research (OUR-UT) in promoting and conducting undergraduate research at The University of Toledo.

**Composition:**

The following colleges will have one member each (with the exception of the Judith Herb College of Education, Health Science & Human Service). These members will be appointed by their respective college offices.

College of Adult & Lifelong Learning

College of Business Administration

College of Engineering

College of Languages Literature & Social Sciences

College of Medicine

College of Natural Sciences & Mathematics

College of Nursing

College of Pharmacy & Pharmaceutical Sciences

College of Visual & Performing Arts

Honors College

Judith Herb College of Education, Health Science & Human Service

    One member from Education

    One member from Health Science & Human Service

University Libraries

Also serving on the committee:

    Director, Office of Undergraduate Research, (*ex officio*)

    Associate Director, Office of Undergraduate Research, (*ex officio*)

    One member from the Office of Research

    One member from Student Government

**Duties:**

The committee will meet at the beginning of each semester to establish the calendar for that semester, and as needed throughout the semester. The committee will form the selection committee to determine the recipients of the university-wide, internally-funded undergraduate research programs (currently, the Academic Year Research Program (AYRP), the First Year Summer Research Experience (FYSRE), Research Abroad/Away Program, Undergraduate Summer Research and Creative Activities Program (USRCAP) and the Work-Study Research Program (WSRP). The director of the Office of Undergraduate Research will present an Annual Report to the committee each Fall semester covering the previous academic year and summer.

**Duration:**

The expected service duration of the committee members from the colleges and the University Libraries is three years, with the possibility of reappointment. The service duration of the member from Student Government and the Office of Research is one year, with the possibility of reappointment. The Director and Associate Director of the Office of Undergraduate Research are permanent members of this committee.

## **Bylaws of the Advisory Committee for Undergraduate Research** (Amended January 2012)

1. College representatives serving on the committee are eligible to also serve as the chair of the committee. The committee chair elect will be elected by a vote of the committee members during the first meeting of the committee each Fall semester. The chair elect will become the chair of the committee at the start of the Fall semester of the year following his or her election, or if the current chair is unable to serve.

2. To promote continuity, the three-year duration membership terms will be staggered. Each term runs from the Fall semester through the summer of the third year. The composition and appointment cycle of each group is as follows:

Cycle A: Terms ending 2013, 2016, 2019, ...

- College of Adult & Lifelong Learning
- College of Engineering
- Honors College
- College of Nursing
- College of Pharmacy & Pharmaceutical Sciences

Cycle B: Terms ending 2014, 2017, 2020, ...

- College of Business & Innovation
- Judith Herb College of Education Health Science & Human Service: Education Departments
- College of Medicine
- College of Visual & Performing Arts

Cycle C: Terms ending 2015, 2018, 2021

- Judith Herb College of Education Health Science & Human Service: Health Sciences & Human Services Departments
- University Libraries
- College of Languages Literature & Social Sciences
- College of Natural Sciences & Mathematics

After their initial terms, the representatives from all of the above named colleges will serve three year terms (with possibility of reappointment).

Appointed each year

Student Government

Office of Research & Sponsored Programs

*ex officio* members

Director, Office of Undergraduate Research

Associate Director, Office of Undergraduate Research

3. Research Intensive Courses

Research Intensive (RI) identified courses designation proposal was adopted by Faculty Senate on March 31, 2009. OUR-UT is charged with playing an integral role in the designation process. To this end, the RI Course Designation Committee will be formed and composed of 6 members chosen by the Advisory Committee for OUR-UT and 2 members selected by Faculty Senate. The Director and Associate Director of the Office of Undergraduate Research will also serve on this committee as *ex-officio* members. The selection procedure for the six members chosen by the Advisory Committee for OUR-UT will be determined by the Advisory Committee.

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**Advisory Committee Members for Undergraduate Research (ACUR)  
Membership AY 2012-2013**

<u>College</u>	<u>Representative</u>	<u>Term ending Summer</u>
○ <b>Adult &amp; Lifelong Learning</b>	Mark Cuthbertson	2016*
○ <b>Business &amp; Innovation</b>	Margaret Hopkins	2014
○ <b>Health Sciences &amp; Human Services</b>	Phillip Gribble	2015
○ <b>Education HSHS</b>	Florian Feucht	2014
○ <b>Engineering</b>	Abdul-Majeed Azad	2013
○ <b>Honors</b>	Glenn Sheldon	2013
○ <b>Languages Literature &amp; Social Sciences</b>	Gbenga Ajilore	2015 (ACUR Chair-elect)
○ <b>Medicine</b>	Joshua Park	2014
○ <b>Natural Sciences &amp; Mathematics</b>	Deborah Chadee	2015
○ <b>Nursing</b>	Kristi Reuille	2016*
○ <b>Pharmacy &amp; Pharmaceutical Sciences</b>	James Slama	2013
○ <b>Research</b>	Elsa Nadler	
○ <b>Student Government</b>	Anthony Bova	2013
○ <b>University Libraries</b>	Wade Lee	2015 (ACUR chair)
○ <b>Visual &amp; Performing Arts</b>	Barbara Miner	2014
○ <b>Undergrad Research</b>	Thomas Kvale	<i>ex officio</i>
○ <b>Undergrad Research</b>	Larry Connin	<i>ex officio</i>

\*Replaced college rep during last year of term ending 2013

**ACUR Minutes:**

11-29-12 Advisory Committee for Undergraduate Research Meeting Minutes

In Attendance:

Barbara Miner, Wade Lee (ACUR Chair), Larry Connin, Thomas Kvale, Jamie Teeple, Phillip Gribble, Gbenga Ajilore, Florian Feucht, Joshua Park, James Slama, Kristi Reuille

Absent:

Abdul-Majeed Azad, Deborah Chadee, Margaret Fritz, Margaret Hopkins, Elsa Nadler, Diane Salvador, Glenn Sheldon, Mark Cuthbertson

Agenda:

- 1) Introductions
- 2) Receive and review the Office of Undergraduate Research (OUR-UT) annual report for 2011- 2012
- 3) Elect a chair-elect to serve as Chair next year (2013-2014)
- 4) Review our charge
- 5) UT Journal of Undergraduate Research
- 6) Discuss how we can promote undergraduate research in our respective colleges to assist the OUR-UT

2:09 PM, start of meeting:

- Introductions; Wade Lee explained the distribution of members of the committee.
- We need a student rep on the committee for spring semester.
- Wade: OUR-UT Annual Report gives a good overview of the purposes/functions of the office.

- Highlights from the OUR-UT Annual Report: Started discussions about the JUR – this will be in new business later.
- Tom: Presented a poster at the national conference at the CUR National Conference – this was well received.
- Also, we (the OUR-UT) will be publishing a vignette with the CUR Quarterly.
- The OUR has received awards for Posters at the Capitol.
  - Last year was very productive – students were able to meet with senators, some in their offices and for others the senators came by and spoke with them at their posters; this is open to all disciplines, for Findlay, UT, BGSU.
- We have received several grants to continue funding for undergraduate research.
- We are working with Residence Life to house students that are researching for us over the summer.
- ARS2980 ensures that students learn how not to make mistakes with researching.
- Budget: Dispersible funds = \$100,000; nominally, about 30 students are supported on this budget; with mentor assistance, this goes up to about 40; our budget was increased this year, of about \$160,000, which makes us consistent with institutions our size.
- Spring semester, we'll need to have a committee meeting before we received proposals to see how we'll approach the review process.
- We try to make the student-faculty pairings first, and then they jointly write a proposal and send this to us.
- We receive about 70 or so proposals, and we are going to try to push for more – we are estimating about 100 proposals for this spring. Because this is labor intensive, we must review the proposal process.
- We have seen irregularities between STEM and non-STEM areas, so we need to educate students regarding how to write proposals.
- About 1/3 to 1/2 of proposals have been supported in some way.
- DEADLINE FOR STUDENTS' PROPOSALS: End of February for USRCAP and all of the summer proposals, but this is up for discussion if/when we meet in January or early February. Students may need extra time to meet with their mentors. FYSRE could be mid-march due to their need for more time to establish connections with mentors.
- We like to have the faculty's reviews back around mid-March.

### Charge...

- Wade: The charge of this committee. This committee is interdisciplinary.
- Would it be easier to work on a spreadsheet, or... to do it online and have some kind of Google survey wherein you'd have a number and name and choose 1-5 and make comments, then this would all go into a tally and be spread out.
- How we scores students: Faculty score, merit, achievability.
- Is it valuable to give students feedback? How, in a timely fashion? Tom: It would be great to have feedback from multiple reviewers. Faculty members were copies on feedback to students. We do not require transcripts, either. Students who may be struggling or at risk do not have barriers to research. The proposal stands on its own.
- Wade: When committee receives proposals, these will be out of reviewers' areas. However, please review them...
- Every proposal read by some but not all members of the committee.
- In terms of advertising: To department secretaries a notification of workshops and proposals' deadline: January/February.
- Barbara Miner: Request for a flier from the OUR-UT.

- Florian Feucht: Had problems with the understandability of some of the more technical proposals. How could I assess this proposal? Could this be something to mention to the mentors, too? Tom: We have encouraged the mentors to come to the workshops.
- Wade: It may be a good idea for the student workshops to develop reviewer-specific rubrics for assessing proposals. This will help them to see “what we’re looking for”.
- We do not fund students who do not have faculty letters.
- Advisory committee members can also be mentors, but must exclude themselves from reviewing their mentee’s proposal.

**#6 Discuss how we can promote...** via email.

**#5 UT-JUR...**

- We will publish this *electronically*.

**Electing a Chair-Elect...**

- Elsa Nadler?
- Wade will check with her and will get back to committee members.

**Last points...**

- Tom: With increased funding, do we want to fund teams?
- The more research groups we can fund, the bigger the pools will be in the future.
- Florian: Better to look at separate projects.
- Tom: We will not advertise a new program wherein we would encourage joint projects.
- Gbenga: We cannot be sure that next year we will have the same level of funding.

3:11 PM, end of meeting.

Meeting length: 1 hour 2 minutes.

## **HIGHLIGHTS OF ACUR MEETING Follow up from 3/29/13 meeting**

From: Lee, Wade M.

To: Ajilore, Gbenga; Azad, Abdul-Majeed; Bova, Anthony; Chadee, Deborah; Connin, Larry J.; Cuthbertson, Mark; Feucht, Florian; Gribble, Phillip; Hopkins, Margaret; Kvale, Thomas J.; Lee, Wade M.; Miner, Barbara; Nadler, Elsa; Park, Joshua J; Reuille, Kristina M.; Sheldon, Glenn; Slama, James T.

Thanks everyone for your work on the evaluations and your input, both through your spreadsheets and in person at today’s meeting. If you have any notes/comments to the students about their proposals that you would like the Office of Undergraduate Research to convey, please send them to [Undergraduate.Research@utoledo.edu](mailto:Undergraduate.Research@utoledo.edu) within the next week.

The final spreadsheet is attached. Office of Undergraduate Research will use our rankings and comments in order to distribute the budget for the USRCAP & FYSRE summer funding.

We will have a final meeting later this semester (either in person, or electronically) to take care of some committee transition issues.

· We will need to elect a Chair for next year, and a Vice-Chair who will become Chair in 2014.

· If your term is expiring, the incoming Chair will be sending a letter requesting an appointment from your college's Dean. Please let me know if you are amenable to being reappointed so that the letter to the dean can reflect that. (I've usually included the phrase "Your college is currently represented on the committee by X, and under the Committee bylaws, he/she may be reappointed if you wish.")

· We may also have to adjust our Committee structure to reflect full college representation if new Colleges are created as planned.

As a reminder, the current roster with term expiration dates are:

College/Rep	Name	Term Ends Summer
Adult & Lifelong Learning	Mark Cuthbertson	2016*
Business & Innovation	Margaret Hopkins	2014
Health Sciences & Human Services	Phillip Gribble	2015
Education HSHS	Florian Feucht	2014
Engineering	Abdul-Majeed Azad	2013
Honors	Glenn Sheldon	2013
Languages Literature & Social Sciences	Gbenga Ajilore	2015
Medicine	Joshua Park	2014
Natural Sciences & Mathematics	Deborah Chadee	2015
Nursing	Kristi Reuille	2016*
Pharmacy & Pharmaceutical Sciences	James Slama	2013
University Libraries	Wade Lee	2015
Visual & Performing Arts	Barbara Miner	2014
Research	Elsa Nadler	
Student Gov	Anthony Bova	
Undergrad Research	Tom Kvale	x
Undergrad Research	Larry Connin	x

\*Replaced college rep during last year of term ending 2013

submitted by: Wade M. Lee

**UNIVERSITY OF TOLEDO OUTCOME ASSESSMENT REPORT 2012 - 2013**  
**Assessment of Service Outcomes**

**Program/Unit Name** Office of Undergraduate Research **Date** 11/17/2013

**Program/Unit Director(s)** Thomas Kvale

**Instructions:**

Service Programs or Units may be stand alone or embedded in Academic Units. The University Assessment Committee (UAC) is interested in the Service programs/units whose primary function is to support the academic mission of the University through a variety of activities. These activities support the primary stakeholders in the in the academic mission such as potential students, matriculated students, alumni, faculty, staff and administration. The phrase “service outcomes” implies academic support service outcomes. While the most important stakeholder is the student, it is acceptable that academic service outcomes may be aligned with other stakeholders such that taken together the student is best served. The types of academic support services will vary among the College/units. Some with be focused to support the student learning environment, while others will be broader in scope congruent with all aspects of the student experience and associated administrative needs.

Assessment of service outcomes is required of all service units that provide services that support the academic mission, such as, but not limited to, the student learning environment, academic advising, or career placement across the university.

Please respond to the items below to describe the assessment of services provided by your service or academic unit. The completed form should be submitted as a Word document to your UAC liaison. For a list of UAC liaisons, please refer to the [UAC website](#).

All assessment of service outcome reports will be summarized by your UAC liaison. This summary for all service programs in your college or service unit will then be submitted to the UAC. The UAC will develop a report for the Provost, Chancellor and President to summarize assessment of service outcomes across all service units and colleges.

**I. Mission:**

Describe the mission of your service program. In particular, describe how the services align with the College/unit/program mission and support the academic mission and support students and academic programs.

The Office of Undergraduate Research provides meaningful research opportunities for all UT undergraduate students. We accomplish this mission by being a resource for faculty members to increase undergraduate involvement in their research, by being a resource for the community and local industries to increase their involvement in undergraduate research, and by aiding in the integration of a research component to existing courses and/or development of new research intensive courses.

**II. External accreditation status:**

If your service program is reviewed and accredited by an external organization, please provide information regarding this accreditation including the name of the accrediting body, your accreditation status and the date of your next self-study and review.



If you do not undergo a regular accreditation process, but follow the guidelines of an external advisory body, please provide the name of this advisory body and whether your program complies with their current guidelines.

Not Applicable.

### III. Service outcomes:

List the service outcomes for this program. These **must** be written in measurable, quantifiable terms. Service outcomes describe services the unit or college provides to satisfy its objectives and mission. More information about writing service outcomes may be found at the [UAC website](#).

Student Learning Outcomes from participation in the programs of the Office of Undergraduate Research:

1. Students will be able to formulate a research project and convey its significance to professionals outside of their area of research.
2. Students will develop time-management skills be able to work diligently on their research for an extended period of time.
3. Students acquire increased proficiency/knowledge of the tools/techniques/methods of inquiry in the profession in which the research project was conducted.
4. Students will develop analysis skills to critically-examine their results and reach conclusions based on their findings.
5. Students will develop presentation skills to present their research to the general public and other professionals (both orally and through written materials).

Are the service outcomes made available to students?

Yes     No

If yes, please indicate how (check all that apply):

Service outcomes on our website

Other: In OUR-UT Annual Reports

Comments:

### IV. Assessment measures:

Complete the following table. List the explicit assessment measures or methods used as a means to validate service outcomes in your unit. For each measure, provide information about the frequency of data collection and the review of this information. Add additional rows as needed.

A variety of measures to assess service performance may be employed. In contrast to the assessment of student learning in academic programs, surveys of service quality are considered to provide a direct measurement of service quality and performance. Other metrics designed to assess the quality, timing and efficiency of the services provided may be used.

An italicized example of an assessment measure is provided in the first row of the table.

Data collection methods, metrics and sources	Applicable service outcomes	Frequency of data collection and review	Person(s) responsible for reviewing data
<i>SLO1: review/rating of submitted proposals</i>	<i>Outcome 1 from section III</i>	<i>semesterly</i>	<i>Program director and the OUR-UT Advisory Committee</i>
<i>SLO2: timecards from participants</i>	<i>Outcome 2 from section III</i>	<i>throughout the individual program</i>	<i>Program director and the OUR-UT Advisory Committee</i>
<i>SLO3: Research Evaluation Forms</i>	<i>Outcomes 3&amp;4 from section III</i>	<i>End of Summer</i>	<i>Program director and the OUR-UT Advisory Committee</i>
<i>SLO4: Final Reports of Students' research projects</i>	<i>Outcome 5 from section III</i>	<i>End of the particular research program</i>	<i>Program director and the OUR-UT Advisory Committee</i>
<i>SLO5: Student Presentations</i>	<i>Outcome 5 from section III</i>	<i>varies</i>	<i>Program director and the OUR-UT Advisory Committee</i>

Additional Comments:

**V. Assessment results and actions to improve services:**

Provide comments in a brief narrative and complete the table below.

Results Narrative:

Describe the significance of these data and how these data provide evidence to determine whether your program is meeting its service outcomes.

**SLO1: Students will be able to formulate a research project...**

Review/rating of submitted proposals to the Summer 2013 FYSRE and USRCAP programs.

COUNT total number of USRCAP proposals (Funded)	<b>45 (37)</b>
COUNT the number of proposals rated >3.75 (Funded)	<b>40 (37)</b>
AVERAGE rating score (1.0-5.0) (Funded)	<b>4.2 (4.4)</b>
COUNT total number of FYSRE proposals (Funded)	<b>15 (12)</b>
COUNT the number of proposals rated >3.75 (Funded)	<b>13 (12)</b>
AVERAGE rating score (1.0-5.0) (Funded)	<b>4.2 (4.3)</b>

Note: Each individual in the Review committee can score at most 10 proposals with the highest rating of 5 and at most 10 proposals with the next highest rating of 4. There are no limits on scores 1-3 for the USRCAP proposals and same for the FYSRE proposals.

**Significance:** Since a limited number of proposals can be scored 4 and above, the count of the number of proposals rated 3.75 and above and the average proposal

rating score indicates that the students are learning to design and articulate research projects to other professionals.

**SLO2: time management:** Data are being summarized

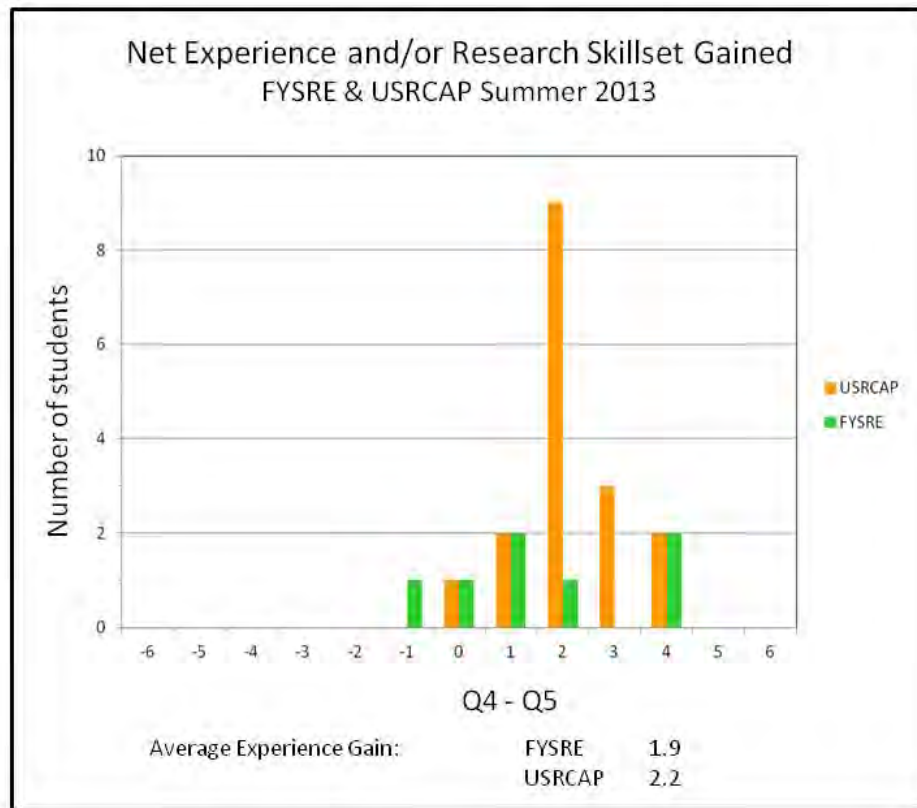
**SLO3 and SLO4: Students acquire increased proficiency/knowledge...**

Research Evaluation Questions 4 and 5 -- Student responses Summer 2013

4. How skilled in the tools/techniques/methods of inquiry in the profession of the research project did you start with at the <u>beginning of the summer</u> ?							
<b>Very skilled/ knowledgeable</b>				<b>Neutral</b>			<b>Not very skilled/ knowledgeable</b>
1	2	3	4	5	6	7	

5. How skilled in the tools/techniques/methods of inquiry in the profession of the research project did you acquire by the <u>end of the summer</u> ?							
<b>Very skilled/ knowledgeable</b>				<b>Neutral</b>			<b>Not very skilled/ knowledgeable</b>
1	2	3	4	5	6	7	

Students responses are summarized on the following graph.



**Significance:** The range goes from -6 (entered the summer with a mastery of the field and ended the summer with no skills) to +6 (entered the summer with no skills and ended the summer with a mastery of the field). The FYSRE average gain of 1.9 differs from last year's gain of over 3.5. However, the lower score this year is influenced by one student reporting a loss of skillsets! This one negative skillset gain affected the average due to the low population of FYSRE participants. Overall, the research experience has been extremely valuable. The USRCAP average gain of 2.2 is statistically similar to last year's skillset gain of 2.8 and also indicates that the research experience has been very

valuable. The skillset average gain for USRCAP is expected to be in the neighborhood of 2.0 since the USRCAP students are typically older, more experienced, and possibly already had a prior research involvement.

**SLO5: Students will develop presentation skills...**

The FYSRE, TolInterns, and USRCAP summer 2013 programs are applicable for this assessment report. These research programs require that the students write a Final Report (currently being collected) and present their research (either orally or a poster presentation) at the End of Summer Research Symposium. The schedule to talks is posted on the Undergraduate Research website and can be made available upon request.

1. Actions to Improve Service Narrative:

Describe examples of changes made in your unit in response to the data gathered. You do not need to limit this discussion to the data presented in section V below. Explicitly describe the data that led to the changes and provide the corresponding service outcome. These changes or modification can be at any level in the unit, for example, at the point of delivery, in unit practices, or in policies.

Decisions may include the choice to continue current effective practices. If no changes are planned for the upcoming academic year (2013 – 2014), please state that this is the case and explain your decision by providing specific justification supported by assessment results.

If changes were made for the previous academic year (2012 - 2013), please describe whether your assessment measures have shown that these changes have led to improvements in service outcomes.

Please also report on your progress from the changes stated in the 2011-2012 report. (if applicable)

Provide a sample of **six** of your findings from the 2012-2013 academic year, including at least one example each of your **best, worst, and average** results. Please also report on three additional results from of the measures listed in the table from section IV. Use the key below to categorize any actions to improve service in the table.

**Kinds of decisions that assessment findings can guide or contribute to:**

**(Enter letter(s) under “Actions to Improve Service” below.)**

- a) **Program content** (e.g., revise one or more programs for knowledge and skills; continue or expand a successful program)
- b) **Staff, professional development** (e.g., opportunity for staff to apply an aspect of assessment in their own work; training for staff on assessment, changing staff participation in assessment)
- c) **Graduate Assistant Training** (e.g., introduce or adjust GA training)
- d) **Undergraduate Employee Training** (e.g. introduce or adjust student employee training)
- e) **Advising** (revise advising practices)
- f) **Facilities** (residence halls, meeting spaces, recreational spaces, etc.)
- g) **Program/Event Scheduling** (modify frequency or schedule of program/event offerings)
- h) **Assessment Processes, Plan, or Infrastructure** (e.g., change methods of data collection; revise service outcomes; adjust process of infrastructure to support assessment)
- i) **Recommendations that involve other units of the university** (e.g., units such as the libraries, that provide support to other programs)
- j) **Equipment** (e.g., computer hardware/software)
- k) **Other** (please explain in comments)

	Corresponding Service Outcome	Target Performance	Results from 2012-2013	Results from 2011-2012	Actions to improve service	Comments
<i>Example</i>	<i>Outcome 1 from Section III.</i>	<i>At least 90%</i>	<i>66%</i>	<i>90%</i>	<i>a, g, h</i>	<i>only resume and cover letter critiques by two Career Services staff were included</i>

	Corresponding Service Outcome	Target Performance	Results from 2012-2013	Results from 2011-2012	Actions to improve service	Comments
1.	SLO1	100%	89%	86%	d.	USRCAP proposals rated >3.75/5.00
2.	SLO1	100%	87%	89%	d.	FYSRE proposals rated >3.75/5.00
3.	SLO2	300 hrs/summer				data are being summarized
4.	SLO3	Student Research skillset increased	Increase of 2.2 (average)	Increase of 2.8 (average)		USRCAP students
5.	SLO3	Student Research skillset increased	Increase of 1.9 (average)	Increase of 3.5 (average)		FYSRE students
6.	SLO5	52 presentations	53 presentations	40 presentations		2013 Presentation schedule appended to this report.

## **VI. Students' involvement (if applicable)**

Describe how students are involved in any aspect of the assessment process for your service program. This could involve eliciting their feedback and recommendations for services in general or their participation on service committees or advisory boards that review data and recommend changes. Include any strategies used to encourage students to provide feedback that has the potential to improve service outcomes.

If the involvement of students in the assessment process is not appropriate (e.g. violation of FERPA, conflict of interest, etc.), please provide a brief explanation as to why this is the case.

Students filled out a Summer Research Evaluation at the close of the summer, 2013.

## **VII. Actions to improve the assessment process**

Describe changes made in any aspect of the process of assessment of service outcomes for your service program. These changes may include new or revised assessment methods or tools, changes in the way data are reviewed, or new strategies related to communication of assessment results revised methods.

In particular, you should address any issues raised by your UAC liaison during the review of your assessment process from the 2011-2012 academic year.

If no changes are planned or made, state that this is the case and explain your decision.

## **VIII. Sharing and discussing assessment**

In the past academic year, with whom have you discussed your assessment results in your department or division? (Check all that apply.)

- Assessment Coordinator(s)
- University Assessment Committee Divisional Liaison
- Divisional Assessment Committee
- Department/Program Assessment Committee (or equivalent)
- Other Committee: \_\_\_\_\_
- Students in your program
- Alumni
- Prospective students
- Department Director
- Department Associate/Assistant Director(s)
- Advisory Board
- Ad hoc
- Unsure
- Other: \_\_\_\_\_

**Comments:**

**Which of these have taken place in your program in the past academic year? (Check all that apply).**

X	Assessment work is rotated among staff so all members gradually build familiarity with key components of program assessment and weigh in
	Staff meetings include a regular time devoted to assessment
	Assessment is integrated into regular standing committees
	Annual retreat to discuss assessment
X	Assessment reports are available to staff
	Assessment leadership has continuity in some way; may be led by a senior administrator
	Unit or division has paid part-time or full-time position devoted to assessment Please explain:
	Unit or division displays assessment results on performance indicators
	In-house professional development occurs: staff share ideas, practices or questions about assessment at informal activities (idea-share, brownbag discussions, etc.)
	Staff attend workshops or conference sessions on assessment
	Training sessions for staff in assessment process-offered by the unit or division, or others
	Staff attend professional accreditation workshops and/or evaluator training
	Publications are available on assessment
	<b>Other:</b> _____

**Comments:**

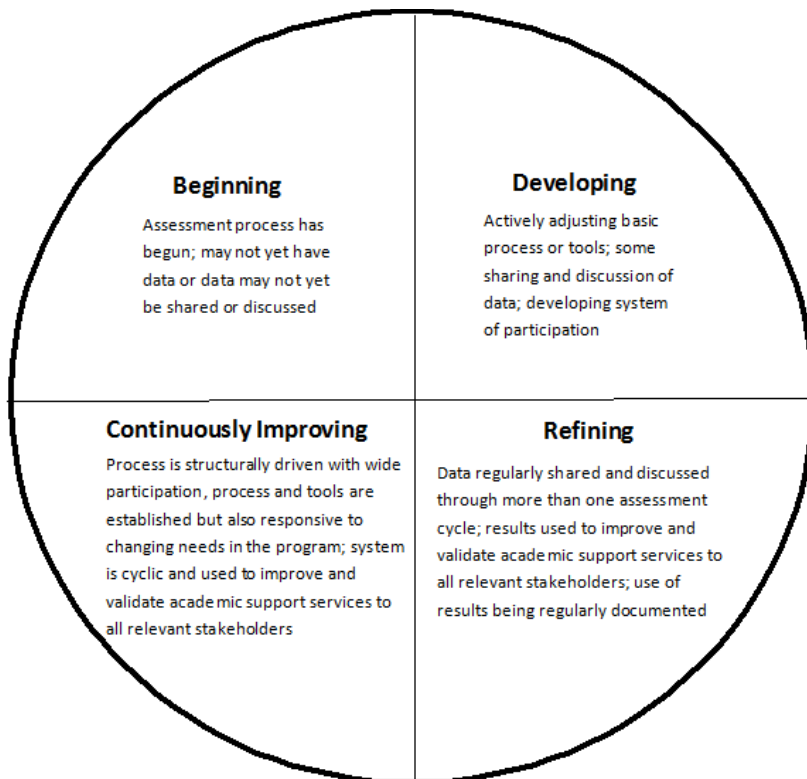
**IX. Dissemination of this assessment report**

A copy of this report will be distributed to your UAC liaison, the entire UAC and your dean or vice-provost/president. Please list other individuals or groups to whom you will send a copy of this report.

**X. Self-Assessment/ Supporting Documentation**

Overall, where would you rate your program’s assessment? (choose one)

Beginning     Developing     Refining     Continuously Improving



Please attach example(s) of artifacts of performance indicators (e.g., displays, rubrics, graphs, charts, etc.) that have been made available to constituents (e.g., faculty, staff, students, administrators, etc.)

**Comments:**

**End of Summer Research Symposium 2013  
Wednesday, July 31, 2013**



**ORAL PRESENTATIONS Sullivan Hall SL3050/60/70**

(10 minute presentations + 2 minutes Q&A)

**Time    Name    Title (Faculty Mentor)**

8:30a-9:00a Set-up posters and upload oral presentations

9:00a **MAKAYLA LOCKETT**    *Second Language Acquisition: A Closer Look at Complete Language Immersion Abroad* (X. Mingli)

9:12a **ELEESHA LOCKETT**    *Japan as One of the Healthiest Countries in the World: How Food and Media Contribute to the Japanese Diet* (R. Padilla)

9:24a **RACHEL OPPERMAN**    *Isolation and Purification of Capsular Poly-saccharides* (P. Andreana)



- 9:36a **TYLER KINNER** *Synthesis and Application of Earth-Abundant and Environmentally-Benign Nanocrystals for Photovoltaic Devices* (R. Ellingson)
- 9:48a **NURAY BAYLAN** *Bone Morphogenetic Protein-2 Incorporated Polycaprolactone-collagen Scaffold as an Injectable Bone Fracture Augmentation Material* (E. Yildirim-Ayan)
- 10:00a **KIRSTEN LONG** *Internship with the Prosecutor's Office, Mayor's Office, and Law Department*
- 10:12a **CRYSTAL ESQUILIN** *Japanese Architecture: A Survey* (A. Rodriguez)
- 10:24a **PEARL GAMBRELL** *What can Lolita Culture tell us about the direction of Japanese Culture?* (J. Hara)
- 10:36a **TORRE BENZING** *Internship with the Findlay City Mayor's Office*
- 10:48a **MARKUS BECK** *Green Storm Water Infrastructure at UT Green Storm Water Infrastructure at UT* (C. Gruden)
- 11:00a **ALEX WISNIEWSKI** *The Role of CEACAM 1 in Fatty Liver Disease* (S. Najjar)
- 11:12a **SAMUEL JOHNSON** *The Synthesis and Application of a Biotin-conjugated Ebselen Probe* (S. Sucheck)

11:30 Welcome from V.P. **James Trempe**, UT Office of Research and Sponsored Programs

11:45-12:45 **POSTER PRESENTATIONS, Sullivan Hall SL2010 and SL2020/30** (See following pages for details.)

**ORAL PRESENTATIONS Sullivan Hall SL3050/60/70**

- 1:00p **CALLAN BIALORUCKI** *The Effect of Osteoblast Mineralization on the Mechanical Properties on an Injectable Bone Tissue Scaffold* (E. Yildirim-Ayan)
- 1:12p **NATHAN JONES** *Classification of Six Dimensional Lie Algebras* (G. Thompson)
- 1:24p **OMAR BADAWI** *Synthesis Evaluation of Magnetic Ionic Liquids as Extraction Solvents in Dispersive Liquid-Liquid Microextraction* (J. Anderson)
- 1:36p **DARIAN MARINIS** *Characterization of High and Low Quality Dry Sand Prairie Soil for Restoration Assessment* (M. Weintraub)
- 1:48p **LAVELLE RIDLEY** *The Reconstructive Imagination of the Later Poetry of Herbert Woodward Martin* (C. Phelps)
- 2:00p **LUKE COUSINO** *Modeling the Effects of Climate Change on Sediment and Phosphorus Concentrations in the Maumee River Watershed* (R. Becker)
- 2:12p **ADAM WIERWILLE** *Design, Installation, and Operation of a PV Atmospheric Conditions Monitoring Station* (R. Ellingson)
- 2:24p **VENKAT VADDAMANI** *The Effect of a Pre-exercise Taurine Supplement on Muscle Fatigue and Muscle Adaptations During High Intensity Interval Training* (B. Scheuermann)
- 2:36p **RYAN FASHEMPOUR** *High Intensity Interval Training with Tourine* (B. Scheuermann)
- 2:48p **BREAK**
- 3:00p **SAMUEL ARNOLD** *Three Pragmatic Sisters: An Observation Concerning Simplicity and Science in the Agriculture and Worldview of American Indians* (C. Ingham)

- 3:12p **JACOB SMITHERS** *The Role of Sas-4 Interaction With  $\gamma$ -tubulin in Centrosome Biogenesis* (T. Avidor-Reiss)
- 3:24p **ORETTE CLARK** *BBR-3378 Modulates Autoimmunity* (A. Quinn)
- 3:36p **NICOLE CARR** *Examining the Molecular Mechanisms of Behavior: An Analysis of FIP3/4 Function in the *C. elegans* Nervous System* (R. Steven)
- 3:48p **ERIC BROZ** *My Hero!: The Idolization of the Heroic Archtype* (D. Hernandez)
- 4:00p **OPEN**
- 4:12p **JOSHUA EGLER** *Adventures in Street Justice*

**POSTER SESSION 1 Sullivan Hall SL2010 11:45-12:15**

- Poster#01 **MARCUS CLUSE** *Cyclopeptide Alkaloid Synthesis* (S. Sucheck)
- Poster#02 **JAMES MORIARTY** *Have fish communities in the Ottawa River changed following a decade of restoration projects?* (J. Gottgens)
- Poster#03 **ERIN GORDON** *Spacers in Spiral Wound Modulates* (G. Lipscomb)
- Poster#04 **ANNA MANGAN** *Phonetic Analysis of Speech Errors in Childhood Apraxia of Speech - A Single Case Study* (C. Menezes)
- Poster#05 **KELLY MOOTE** *Acoustical Analysis of Vowel Duration in a Person with Broca's Aphasia and Apraxia of Speech* (C. Menezes)
- Poster#06 **TINA SHERMAN** *Articulation Errors in Persons with Broca's Aphasia and Apraxia: An Articulatory Analysis* (C. Menezes)
- Poster#07 **TRISHA BELANGER** *The Voices of Love: An Acoustic Analysis of Emotional Voice Quality* (C. Menezes)
- Poster#08 **YONGGIL JANG** *Examination of Drug Carrying Ability of Midi-GAGR through the Blood Brain Barrier* (J. Park)
- Poster#09 **LUKE KWIATKOWSKI** *An Investigation into the Geometric and Topological Invariants of Gravitational Lenses* (M. Tsui)
- Poster#10 **JON WIMER** *High Yield Production of Ketose Sugars Through Reactive Extraction: Evaluation of Mixed Sugar Extraction and Separation* (P. Relue)
- Poster#11 **AARON LUCIUS** *Biology, Sustainability and Environmental Impact: Research, Development and Implementation of the Barrel-Ponic System* (P. Armstrong)
- Poster#12 **ALEX SCHWANN** *Measurement of Sugar-Boronic Acid Binding Affinity and Development of a Mathematical Binding Model* (P. Relue)

**POSTER SESSION 2 Sullivan Hall SL 2020/2030 12:15-12:45**

- Poster#13 **SARAH MCMASTERS** *Location of MUA-1 Transcription Factors in *Caenorhabditis elegans** (J. Plenefisch)
- Poster#14 **JENNIFER COLLIER** *Environmental Impact Comparison of CCB and  $Zn_3P_2$  to Current PV Technologies* (D. Apul)
- Poster#15 **PANAGIOTIS BORDOVALOS** *Examining the Karst Features of Castalia, Ohio* (D. Stierman)
- Poster#16 **JAMES DUNAWAY** *Total Synthesis of Antitumor Antibiotic Derhodinosylurdamycin A* (J. Zhu)

- Poster#17 **CHRISTIAN SIEBENALER** *Swapping the Promoter of Intermediate Filament IFA-3 with the Promoter of IFA-2 in Caenorhabditis elegans to Determine Genetic Similarity* (J. Plenefisch)
- Poster#18 **SIERRA PARKER** *Metal-Free, Aerobic Dehydrogenation of 1,3,5-Pyrazolines, 1,4-Dihydropyridines, and 3,4-Dihydropyrimidin-2(1H)-ones* (K. Yamamoto)
- Poster#19 **JOSHUA STAFFELD** *A Metal Free, Aerobic Oxidation of Azolines to Azoles* (K. Yamamoto)
- Poster#20 **VINCE MEYER** TBA
- Poster#21 **BRANDON SCHURTER** *Effective Dosage from Neutron Radiation in NTF's Zebra Bay* (T. Kvale & R. Irving)
- Poster#22 **ANNA BARNES** *Optical Emission Spectroscopy for Low Temperature Plasma during Chemical Vapor Deposition* (N. Podraza)
- Poster#23 **JASON DAVIS** Antifouling Properties of Polyphenol-Ferrite Coatings (D. Kim)
- Poster#24 **SUSAN SALARI** A Comparison of Lipid A structures present in LPS of Burkholderia Pseudomallei and Burkholderia Thilandensis (D. Isailovic)
- Poster#25 **OLIVIA AKAH** Synthesis of Largazole Analogues with Modified Surface Recognition Hydrophobic Cap Groups (V. Tillekeratne)
- Poster#26 **KEVIN KELBACH** Oxygen in Spatter Plasma (A. Compaan)

**Students to present during Fall Semester:**

**YASMINE AYOUB, ASHLEY KEENAN**