Undergraduate Research
A high-impact practice for all majors

Megan Lamkin, PhD
Program Director, Undergraduate Research
EXPERIENCE-BASED LEARNING AND CAREER EDUCATION

...widely tested & shown to benefit students from many backgrounds… AACU
What you will leave with today

**Increased awareness** of UG research opportunities at UC & beyond

**Increased understanding** of what it takes to access opportunity & thrive in a research environment

**Resources** to help advise the majors you serve
UC: R1 Research Institution

Carnegie Classification of Institutions of Higher Education

R1 = Highest research activity

Includes 115 out of 4,660 US Colleges & Universities (2.5%)

Requires >$40 million/year in federal support

UC $429,124,325 in 2016
What is research?

Council on UG Research

A focused study of a specific topic that results in

an original intellectual or creative contribution to the discipline
Research generates

Knowledge

Innovation in
technology
methodology
process
design

expression &
interpretation of
human experience
Research

*UC course definition*

A specially designed learning experience in which all or part of the instruction includes student participation in **supervised research with a faculty member**.

Sample Courses

*Course attribute = “R”*

Permission Required

Project in…
Problems in...
Senior thesis
Independent study
Undergrad research
Research practicum
Junior/Senior readings
## Experiential Learning Course Enrollment: 2015/16

<table>
<thead>
<tr>
<th>College</th>
<th>Internship Students</th>
<th>RESEARCH Count</th>
<th>RESEARCH Pct</th>
<th>Svc Learn Count</th>
<th>Svc Learn Pct</th>
<th>Coop Count</th>
<th>Coop Pct</th>
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<td>2.1%</td>
<td>1203</td>
<td>60.5%</td>
<td>1911</td>
<td>96.2%</td>
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<tr>
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<td>0.0%</td>
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<td><strong>4,376</strong></td>
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<td><strong>4,663</strong></td>
<td><strong>14.4%</strong></td>
<td><strong>16,094</strong></td>
<td><strong>49.8%</strong></td>
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</table>

Enrollment counts are from end of term summer 2015, fall 2015, spring 2016.
For course credit:

Student must be involved in **all aspects** of the research process

The question

The strategy to answer the question

Analysis & interpretation of information

Communication of process and outcome
#1 Expectation:
DOCUMENTATION/PRESENTATION

Undergraduate Scholarly Showcase

An event where students from across the university share findings, revelations, inventions, and interpretations of the world we live in.

4/16/18
Tangeman University Center
10 am – 3 pm
Sample presentation titles
2017 UG Research Conference

The Other Side

The Data of Refugee Resettlement: An Analysis of the Influence of Asylum Seekers on Crime

Icons & Skeletons from the Winkler Archives

Mill Creek Water Quality Project
Not all students engage in research for course credit

<table>
<thead>
<tr>
<th>Credit</th>
<th>Both</th>
<th>Pay</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 hrs/week per credit</td>
<td>Summer Fellowships &amp; Stipends</td>
<td>Min. 10 hrs/week</td>
</tr>
<tr>
<td>Many faculty want 10 hrs/week</td>
<td>WISE SURF Protégé Taft Scholarship</td>
<td>Paid through a grant or work-study</td>
</tr>
<tr>
<td>Can boost your GPA</td>
<td>College/URC Scholarship</td>
<td>Looks good on a resume</td>
</tr>
</tbody>
</table>
UG Research Checklist

✔️ Faculty supervised
✔️ For credit or pay
✔️ Involved in all aspects
✔️ Original contribution
✔️ Presentation or publication

What are “all aspects” of a research process?

What qualifies as an “original contribution”? 
Activity:
Can I get credit for that?

Each of you has a scenario to read & consider:

*Can the student get credit for that?*

The answer is always *it depends*.

Your role: offer modifications to the scenario that will allow the student to register the experience for course credit.
Can I get credit for that?

One of my professors is working on identifying archeological remains uncovered during the construction of a porch addition to the Newtown Fire Station in Newtown, Ohio.

This summer, I will weigh and catalogue hundreds of samples.

Is that something I can get course credit for?
Can I get credit for that?

In my history course I learned something that I was shocked to have never learned growing up in India: an Indian diaspora was generated by the forced migration of indentured servants into European colonies at the end of legal slavery.

I had to know more! After much research, I ended up writing a paper showing similarities in the Indian and Jewish diaspora and would like to get it published.

Can I get research credit for that, or maybe capstone credit?
Can I get credit for that?

The new Stress Center at UC Health is dedicated to caring for families living with PTSD. I saw a posting through ReCON that they are interested in hiring a student to analyze data to determine a stable growth model for their facility.

They are also interested in this person identifying a gap in services for families in Hamilton County coping with PTSD.

Is that something I could use for a research experience?
Can I get credit for that?

Several women involved with STEM research have been gathering informally as a support group for women in research.

We recently did an activity led by a grad student in the group called photovoice. Basically, we took photos of scenes associated with our research and brought them back to the group to discuss. The results of this process inspired us to document our findings in a poster that we presented at the Diversity Matters conference.

Is that something we could use to get research credits?
Can I get credit for that?

Over the summer, I volunteered to help a professor design theater sets for a dance performance scheduled during CCM’s 150th anniversary this fall. The idea was to start with a set that weighed heavily in elements from the first decades of production. Subsequent sets would bring us increasingly closer to present time.

It was a lot of work, and I’m wondering if it’s something I could get credit for?
When do students engage in research?

Year 1: Explore options, make connections.

Year 2: Perfect time to get into a project.

Year 3: Presentations (Fig. 1).

Year 4: Continue or start anew

Apply for fellowships winter break each year.

Fig. 1. Presenters at the 2017 UG Research Conference by Year in School
What faculty want the most:

- ✔️ Genuine interest
- ✔️ Self-motivation
- ✔️ Commitment to the project
- ✔️ Solves problems independently, but asks for help when needed
- ✔️ Record-keeping & attention to detail
- ✔️ Communicates regularly
Students should be prepared to…

Demonstrate professionalism

Stumble    Adapt

Work collaboratively & independently

Receive (and give) thoughtful feedback

Share progress at weekly meetings
#1 EXPECTATION:
Their research process is shared

Undergraduate Scholarly Showcase

An event where students from across the university share findings, revelations, inventions, and interpretations of the world we live in

4.16.18
Tangeman University Center
10 am – 3 pm
Potential benefits

Experience, Perspective, Intellectual Satisfaction, Contacts, References, Additional Opportunity, Economic Reward, Scholarly Recognition, Community
Being a part of a research community can be highly rewarding.

Students having difficulty may contact me, Ombuds
Pathways to a Research Experience

ReCON: peer-to-peer mentoring

Professional development courses
*Offered by a college, department or ELCE*

Independent outreach & application
Ready for Research
+ Mentor-Mentee Pairing
+
Meeting #1: Action Plan
Meeting #2: Shadow & Read
Meeting #3: Resume/CV Check
Meeting #4: Assisted Search
Meeting #5: Follow-up
May include CITI training
Academic Internship Program

*ELCE*

Professional development course prepares students for effective engagement in a professional setting.

Graduates of “PD” courses gain access to ELCE’s internship database.
Independent Searches for research opportunities at UC & Beyond

33,561 Undergrads: 2,832 Full-time Faculty (12:1)

Research Opportunities
(Experience-based Learning & Career Education)

Research Directory
(Office of Research)

Grant funded faculty:
Sponsored Research Activity Dashboard

NSF REU Sites
National Laboratories
USA Jobs Internship Program
Research Centers & Institutes at UC CECH

- Action Research Center
- Arlitt Center for Education, Research, & Sustainability
- Center for Criminal Justice Research
- Center for International Education & Research
- Center for Studies in Jewish Education & Culture
- UC Corrections Institute
- Developmental & Learning Sciences Research Center
- Economics Center for Education & Research
- Evaluation Services Center
- Fusion Center
- Literary Research & Innovation Center
Research Centers & Institutes at UC
College of Medicine

UC Cancer Institute

UC Gardner Neuroscience Institute

UC Hearth, Lung, and Vascular Institute

UC Center for Integrative Health & Wellness

Education & Research Center
Allied Health Research Labs

AAC & Aphasia Lab
Acoustics, Modeling, Perception & Speech Lab (AMPRLAB)
Communication, Language Learning Education and Research Lab (CLLeaRLAB)
Facility for Education and Testing of Canine Hearing and Laboratory for Animal Bioacoustics (FETCHLAB)

Human Auditory Evoked Potential Lab (HAEPLAB)
Pediatric Language, Literacy & Speech Outcomes Lab (PedLLSLAB)
Speech Research Lab
Evoke Auditory Response Lab (EARLAB)
Voice and Swallowing Lab
Arts & Sciences Centers

Center for Biosensors & Chemical Sensors

Center for Geospatial Information & Environmental Sensor Network (GIESN)

Center for Organizational Leadership

Charles Phelps Taft Research Center

Cognition, Action and Perception Center (CAP)

Cincinnati Center for Field Studies

McMicken Health Research Center
CEAS Research Centers & Labs

Small sample

*Center of Academic Excellence in Cyber Operations*

*Center for Mobile and Distributed Computing*

*Center for Surgical Innovation*

*National Science Foundation Industry University Cooperative Research for Intelligent Maintenance Systems (IMS)*

*Center for Micro/Nano Fabrication - Clean Room*

*UC Center for Robotics Research*

*Collaboratory for Medical Innovation and Implementation*

*National Science Foundation (NSF) Engineering Research Center for Revolutionizing Metallic Biomaterials*

*Ohio Center for Microfluidic Innovation*

*Advanced Materials Characterization Center*
Research Centers & Institutes at Lindner College of Business

- Center for Insurance & Risk Management
- Center for Business Analytics
- Center for Entrepreneurship & Commercialization
- Goering Center for Family & Private Practice
- UC Real Estate Center & Program
- Professional Selling
Miscellaneous Research Centers & Units

UC Institute for Nursing Research & Scholarship

UC Institute for Policy Research

Taft Research Center

Livewell Collaborative

UC Digital Scholarship Center

Cincinnati Children’s Institutes, Divisions, & Centers
Summer Undergraduate Research Fellowships

**BRIMS: Biomedical Research Internship for Minority Students**

**RAMP: Research & Mentoring Program**

**ROSE: Research, Observation, Service, & Education**

**SURF: Summer Undergraduate Research Fellowship**

**WISE: Women in Science & Engineering**

**Protégé: Engineering Students**

**Sigma Xi Grants in Aid of Research (GIAR): STEM majors**

**Taft UG Research Award**

**STARS/McNair**

**University Research Council (URC) Fellowship**

**NSF REU Sites**
Summer Undergraduate Research Scholarships & Sources of Financial Support

**Sigma Xi Grants in Aid of Research (GIAR):** STEM majors

**Taft UG Research Award** Taft majors

**University Research Council (URC) Fellowship** All majors

**A&S STEM Fund**
Advise student to reach out to 5 faculty per week until they get a bite

Craft personalized, professional email expressing interest & availability.

Request time to meet. Offer several options.

Attach Resume or CV.
Activity

Get a partner. One of you is advisor, the other is a student.

The student mentions interest in UG Research but isn’t sure where to begin.

What questions do you ask to clarify what they might have in mind?

How do you articulate options?

What resources do you offer?

What advice do you offer to help them succeed?

*Both in getting a position and thriving in it*
Questions?