Undergraduate Research and Mentoring Programs

A Step-By-Step Approach to Developing Undergraduate Research and Mentoring Programs for STEMM and Non-STEMM Students

Presented by Megan Minton, Assistant Director and Honors Advisor
University Honors Program, University of Cincinnati
The University Honors Program

• Mission and Vision
• Honors Experiences
  – Pre-Approved
  – Self-Designed
• Reflection & Integration
• Giving Back
Biomedical Research and Mentoring Program (RaMP)

http://www.uc.edu/honors/students/experiences/pre-approved/ramp.html
Program Overview

• 1\textsuperscript{st} and 2\textsuperscript{nd} year students
• Grad student and post-doc fellows mentor
• High-level research for undergrads
• Development of mentoring abilities for researchers
Program Logistics

- 8-15 hours per week (spring)
- Oversight with University Honors Program, UC College of Medicine, and Cincinnati Children’s Hospital Medical Center
- Grant funding (students) from UHP
Sample Projects

- Genetic Causes of Childhood Inflammatory Disorders
- Next Generation Therapies for the Prevention and Treatment of Childhood Cancer
- Modeling the Impacts of Stress During Pregnancy on Offspring Across Development
- Pediatric Environmental Exposure Study
- Biology of Ticks and Tick-borne Diseases: Implications for Human Health
UHP Discover

https://www.uc.edu/honors/students/experiences/uhp-discover.html
Program Overview

• Students of any year
• UC faculty mentors
• Non-STEM research
• Increases awareness that research opportunities are available to students in all fields
Program Logistics

- 32-40 hours per week (summer)
- Oversight with University Honors Program
- Grant funding (students and mentors) from UHP
Sample Projects

- Understanding International Relations in an Era of Globalized Production
- What Happens After Activists Win or Lose?
- What is Hope and Can it be Taught?
- The Pompeii Archaeological Research Project: Porta Stabia
- Integration of Unaccompanied, Underage, Undocumented Migrants
- Dialects of Dhol-Damaun: The Styles and Functions of Drumming in the Indian Himalayas
## Side-By-Side Comparison

<table>
<thead>
<tr>
<th></th>
<th>RaMP</th>
<th>UHP Discover</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Targeted students</strong></td>
<td>1st and 2nd year students</td>
<td>Any age (except graduating seniors)</td>
</tr>
<tr>
<td><strong>Experiences satisfied</strong></td>
<td>1 experience</td>
<td>2 experiences</td>
</tr>
<tr>
<td><strong>Mentor credentials</strong></td>
<td>Grad student/PhD/MD-PhD</td>
<td>Any UC faculty</td>
</tr>
<tr>
<td><strong>Location</strong></td>
<td>UC COM/Cincinnati Children's</td>
<td>Various locations</td>
</tr>
<tr>
<td><strong>Timeline</strong></td>
<td>Janary - April</td>
<td>May - August</td>
</tr>
<tr>
<td><strong>Project hours</strong></td>
<td>8-15 hours a week</td>
<td>32-40 hours a week</td>
</tr>
<tr>
<td><strong>Ongoing reflection</strong></td>
<td>Professional development sessions</td>
<td>Professional development sessions</td>
</tr>
<tr>
<td><strong>Sharing of learning</strong></td>
<td>Final presentation</td>
<td>Final presentation</td>
</tr>
</tbody>
</table>
Step-By-Step Guide
Step One – Find campus partners

• Other mentoring programs on campus?

• Professionals who may be experts on:
  – Crafting personal statement for grad school applications
  – Ethics in research
  – Presenting research
  – Maximizing a mentoring relationship

• Someone to recruit and train mentors, if needed
Step Two – Recruit and train mentors

- Familiarize with contract/expectations of honors program
- Four week training program for RaMP mentors with College of Medicine partner
  - Intricacies of badging process
  - Ethics involved with scientific research
  - Communication techniques
- Deans and Department Heads of targeted College units
- Targeted faculty
  - Solicit student feedback on inspiring professors/mentors
Step Three – Recruit Students

- Share projects on website
- Hold info sessions
- Host application prep workshops
- Share with targeted advisees
- Announce on weekly listserv
Step Four – Coordinate Matching Process

- Host meet and greet/mentor presentations
- Keep track of applications/interviews
  - Match with only one student
  - Encourage students to apply more broadly as needed
- Hold orientation
  - Sign contracts
  - Maximizing Mentoring
  - Turn in hours
  - Discuss professional development sessions
Step Five – Mid-Semester checkpoint

• Bring cohort together
• General overview of experience
• Share about mentoring relationship
• Begin presentation prep
• Discuss plans for following semester
Professional Development Sessions

• (Mid-Semester Check-In and Community Building)
• Ethics in Research
• Articulating Honors Experiences in Resume/Cover Letter/Personal Statement
• Presenting Research to a Broad Audience

____________________________________________________________________________________

• Final Presentations
  – 3 minutes
  – Focus on personal growth and practical application outside of research
Last Step – Assess & Track Continuations

• Solicit feedback regarding:
  – Student performance
  – Mentor performance
  – Program coordination

• Track student continuation
  – In research – same environment
  – Research, new environment
  – No continuation
Quick Stats

RaMP
- 40 applicants (for 26 spaces)
  - 31 first-year students, 9 second-year
  - Representing 9 majors – 8 of which are STEMM
  - Average student applied to 5 labs
  - 26 matched
  - 8 additional placed after (self-designed)
  - 9 continuing RaMP over summer
  - 11 matched with SURF labs

UHP Discover
- 26 applicants (for 5 spaces)
  - 1 first-year, 6 second-years, 12 pre-juniors, 7 juniors (in 5-year programs)
  - Representing 16 majors – 9 of which are non-STEMM
  - Average student applied to 2 labs
  - 5 matched

**2016 cohort: 65% still researching (22 of 34) and 77% of them still in same lab!**
Questions?