
Strategies for Recruiting and Engaging Students with Disabilities in Research Experience for Undergraduates, REU, Programs

The Ohio State University

<http://cem.osu.edu/education-and-outreach/reu/reu-summer-2015/>

Michelle McCombs, CEM Program Manager, Ohio State University

Christopher Andersen, Associate Professor, Teacher Education, Ohio University

Project Summary

The Center for Emergent Materials (CEM), a National Science Foundation (NSF) Materials Research Science and Engineering Center (MRSEC) at The Ohio State University (OSU) works to recruit students with disabilities for engaging Research Experiences for Undergraduates (REUs) through the American Association for the Advancement of Science (AAAS) EntryPoint! program and the Ohio STEM (science, technology, engineering, and mathematics) Ability Alliance (OSAA). The NSF REU seeks to increase students' competitiveness for the next steps in their career through participation in the research program. The program offers training for faculty and mentors, asks faculty to commit to providing a supportive atmosphere for students, and seeks out encouraging graduate students to serve as mentors. Support is available for both the faculty and the student in the lab, and, when necessary, includes the office of disability services to provide accommodations or other needs. Faculty mentoring and appropriate accommodations enable students with disabilities to succeed in science and engineering laboratories.

Training for faculty members includes information about common issues, misconceptions, and resources. Follow up meetings with faculty are held after students have been in their labs for 2-4 weeks. For students with visual impairments or physical disabilities, state vocational services or disability services provided support. In internships, students encounter experimental and theoretical research in physics, chemistry and materials science. Part of their training includes working with sophisticated lab equipment.

The faculty mentors and graduate student/post-doctoral mentors benefit because they have the experience of working directly with the student in the program and are exposed to a research perspective completely different from what they have experienced. The Center benefits by building a network outside of Ohio State through national partners while increasing the diversity of the program. The participating students gain a research experience that prepares them to be competitive when applying to graduate school in STEM fields, or when applying for jobs upon graduation.

To date, CEM has had 10 differently abled students complete our research program. Two students are currently in graduate school, three are in careers in STEM fields, four are still at their undergraduate institutions and there is one for which we do not have current data.

Description

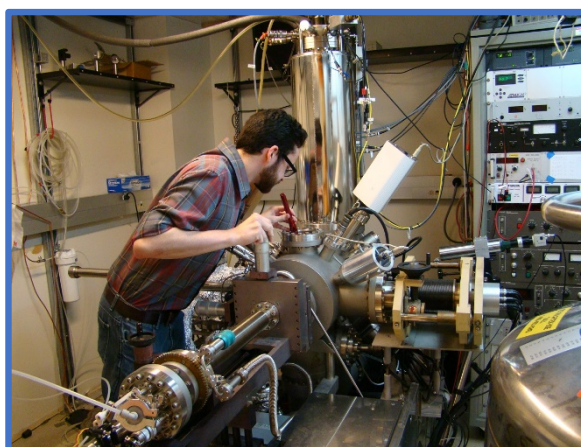
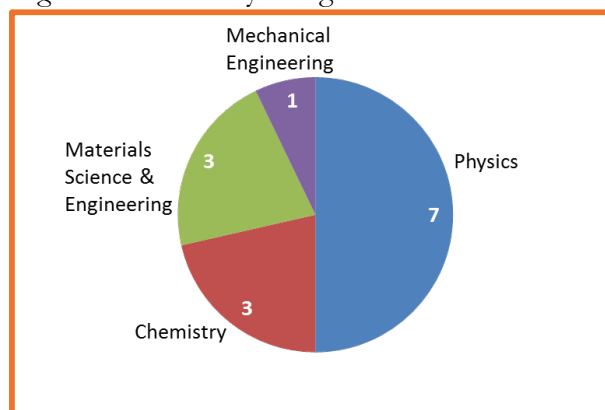
CEM runs both an academic year and summer research program. The academic year program runs from November throughout the spring semester. The summer program is a 10-week summer internship where students from around the nation are housed on campus. The summer of 2017 is

the 8th year for the summer research program. In the fall of 2014, the Academic Year research program transitioned from a larger program which placed 8 students from both OSU and a neighboring community college in the Columbus area to a smaller program focusing on building the partnership with the community college, and only accepting 3 students per year from the community college.

For the summer program, students apply in early February, are accepted in early March, and the program begins mid-May. For students with disabilities, we ensure they have the information to reach out to the office of disability services. The program coordinator also speaks directly with them (or a guardian) regarding any accommodations they may need. Once a student has been accepted to the program, the selection committee identifies a mentor that would be a good academic and personal match. For students with disabilities, if the student declared the disability on the application, the faculty mentor is informed so they can participate in training or request any resources if they feel they need to.

Ten students with declared disabilities completed the summer and academic year program. Some of these students participated in multiple programs within CEM. These students had a variety of abilities ranging from emotional to learning to physical and others were specifically health-related. These students thrived in a variety of research environments, both theory focused, and experiment focused disciplines/ See figure 1 for details.

Figure 1. Laboratory Assignments in CEM REU



Context

The CEM was funded in 2008. As an NSF Center, a significant portion of the budget is dedicated to Education and Outreach. One of the most successful programs that NSF supports and requires each center to run is a REU program to provide undergraduates with research experiences in preparation for graduate school. Since the Center began, those working to organize the REU program have strived to include students with disabilities. The first education program coordinator, Christopher Andersen, has been instrumental in spearheading and continuing to support this effort. Chris had direct ties to the OSAA program on campus as well as the AAAS EntryPoint! program and worked to recruit students with disabilities through these programs. As the work load became more demanding for this position, a new education coordinator, Michelle McCombs, was brought in full time and Chris transitioned elsewhere on campus, but maintained ties to CEM to help continue the process of recruiting and engaging students with disabilities in the outreach programs.

OSAA was a program on OSU's campus that provided a variety of resources for students with disabilities in STEM fields, including help placing them in research internships. OSAA is no longer funded, so our primary partner at this point is EntryPoint!. EntryPoint! has a program coordinator that works to place students with disabilities in summer internships nationwide. CEM has worked with EntryPoint! to identify the type of students that best fit our program requirements, and this has been an evolving relationship over the past few years. There has been great success with this partnership and for the last three summers CEM has accepted at least one student from this program per summer for our research internship.

Evaluation

The evaluation done has been predominantly program evaluation, pre and post surveys for both the academic year and summer programs. During the summer, weekly professional development workshops are offered to build students scientific presentation skills as well as networking opportunities and other activities to help their professional growth. There are surveys completed after each session, but they are anonymous, data does not show how these workshops specifically impacted the students with disabilities.

Last summer, CEM conducted an interview with the students for more specific program feedback. CEM requested feedback from faculty mentors as well as graduate student mentors, but most of that feedback has been through informal conversations.

Challenges

Challenges or barriers to systemic change include physical infrastructure, faculty and student perceptions, and succession issues.

Physical Infrastructure

One of the biggest challenges is the physical infrastructure of the university. In the summer 2014 program a student accepted for a materials science research experience had a physical disability and was in a wheelchair. The program coordinator met with the office of disability services and the faculty mentor that was planning to work with this student. They assessed physical accommodations that would have to be made and determined that it would cost too much to bring an older building up to compliance for this student. The solution was to place this student with another faculty member, who was working in a newer building that already met the requested accommodations.

Faculty Perceptions

Some faculty initially had reservations about incorporating students with disabilities into their research groups. These included personal bias and apprehension of having someone with a disability in the lab. Depending on the disability, there may have been an initial perception that the student cannot do the work for safety reasons or even simple tasks such as physically maneuvering around equipment in the laboratory. Since CEM has been doing this for several years and provides resources as needed, faculty seem to be much less concerned, especially those who have had a student participate in their lab.

Student Perceptions

Students don't want to disclose their disabilities unless they have to, especially those with "hidden" disabilities. Partly, this is due to lack of self-acceptance of disability, but also fear of professional and personal consequences of disclosure.

Succession of Senior Leadership

Dealing with succession of senior leadership and finding new advocates can be a difficult task. It is great to have a senior administrator (dean, provost, president) as an advocate, but what happens when that advocate leaves? In particular, an administrator who was the fiscal advocate.

Center for Emergent Materials REU Program Logic Model

