UNDERGRADUATE RESEARCH
PROGRAM DIRECTORS

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Message from Our Chair

By: Anne Boettcher, Embry-Riddle Aeronautical University with assistance from Sandy Gregerman, University of Michigan

The recent Hart Research Associates Report (2015) *Falling Short? College Learning and Career Success* points to a continuing gap between skills identified as important by industry and those our college graduates possess. The ability to communicate effectively, work in teams, think critically, work with people from different cultural backgrounds, and make ethical decisions, like past studies, top the list of skills industry is seeking. The study recognizes the importance of completion of a "significant applied learning project" in providing students with these skills, i.e. undergraduate research opportunities provide just these skills. Our students who engage in undergraduate research vs. their "classroom" only friends speak about how important undergraduate research is in helping them understand and apply complex theoretical concepts, look more skeptically and carefully at statistical information they read about, and see how the relevance of these concepts in solving real world problems. To quote a student from one of our programs, "I have learned so much from my experience, but perhaps the most important thing is the application of the in-classroom skills to a real world problem. Understanding the technical side of a subject is one thing, but being able to apply this knowledge to solve problems through research is another. Everything we are learning now will contribute in some way to our future in the real world, attempting to resolve important problems and make the world a better place."

Our job is to assure that students are effectively translating their research experiences as they move forward. Julie Lyon, a URPD Councilor points to three ways to facilitate this: 1) Learn how to talk about research findings in lay language. Coworkers will likely not have a similar background, so the words you use to describe your results need to make sense to non-experts, 2) Practice presenting. You'd be surprised how often you will be asked to present data or make the case for your opinion in meetings with others. Your ability to persuade others in a way that seems effortless will secure your credibility as someone whose opinion matters, and 3) Meet people from across disciplines. Your ability to get promoted and be successful in higher-level positions depends not only on your performance but also on your relationships with others. Take every opportunity you can to meet people and stay in touch with them. Key to our programs should be inclusion of interactions of students from across disciplines, ethics training, practice on elevator speeches, and of course providing every opportunity for students to communicate their results – local, regional, national, and international (YEAH NCUR).

Spotlight: Alumni Survey

By: Heather Johnson Schmitz and Karen Havholm, University of Wisconsin-Eau Claire

We surveyed UW-Eau Claire UR alumni to discover their perception of learning gains, as well as how their research experience assisted them after graduation. One exciting result is that 65% of those in the workforce said that their UR experience was helpful in securing employment. For example, one person said "It was a discussion point in my interview that helped set me apart from the other candidates." See our article in the spring 2015 CUR Quarterly *Undergraduate Research and Alumni: Perceptions on Learning Gains* for a comparison of what academia wants students to learn vs. what employers want job applicants to know and be able to do, as well as further survey results.

URPD Updates & Accomplishments

- The URPD division has created a LinkedIn group to help build community and facilitate discussion. The LinkedIn group can be found at: http://tinyurl.com/urpdlinkedin

- The office that houses the Center of Excellence for Faculty and Undergraduate Student Research Collaboration at UW-EAU Claire was this year's recipient of the University of Wisconsin System-wide Regents Award for Excellence in Academic Staff Unit Performance Award.

- Jenny Shanahan and her colleagues published "Research-Informed Practice, Practice-Informed Research: The Integral Role of Undergraduate Research in Professional Disciplines" in CUR Quarterly.

- Congratulations to Suma Datta for her promotion to Full Professor!

Lessons Learned: Skills Our Graduates Need

By: Aaron Rodzinak, Ball Aerospace and Technologies Corp., Employer Guest Editorial

Recently, I traveled back to my alma mater, Embry-Riddle Aeronautical University (Prescott, AZ campus), to talk with the students about the things that I had learned since college. In the months leading up to this speech, I reflected on 21 years of work successes and challenges. The things that stood out to me almost immediately were the **professional development skills** that I learned along the way...and continue to learn. You'll often hear these called "soft skills" so that they can be differentiated from the "hard" technical skills that we all learn in academia. There is nothing soft about these skills except in the way they should be used with everyone you encounter during challenging times.

I explained that it had been my experience that the engineering technical challenges that I faced were far easier than the inter-personal challenges that were always part of the package – but why? A former classmate of mine, Chester Bullock, and I were reflecting on this very question and Chester summed it up succinctly. He said, *"I can teach someone (a new hire) the technical aspect of the job, but I can't teach attitude."*

Many of us put a lot of emphasis on the technical ability, but I will tell you that the real heroes on any project are the **trusted, patient, confident, yet humble people**. These are the ones that can face a peer or customer's unbridled emotion and turn a potentially volatile environment into a calm, synergetic, and goal-focused environment, which gives everyone on the team a sense of duty and purpose. Those are the people that actually save a project and often it is without much fanfare. These are skills that can be fostered and developed as part of undergraduate research experiences, particularly those that tie student researchers to industry or consumer partners.

Q&A: How do you help your students "unpack" or explain what they have learned in their undergraduate research positions?

By: Korine Wawrzynski, Michigan State University

- Sara O'Brien's (Radford University) students create an ePortfolio to reflect on their work. Faculty mentors review these to ensure critical reasoning is occurring. See http://emilyguise.weebly.com for an example.

- Anne Boettcher (Embry-Riddle Aeronautical University) works with students to frame their research statements for applications. A summer workshop helps with resume building and research framing.

- Patrick Killion (University of Maryland) coaches students to consider their experiences from a potential employer's perspective. Students reflect on questions, such as, "How will this experience look best and what developed qualities can be put on display?" These types of questions help students emphasize their ownership, accomplishments and applicable skills.

- Peter Smith (Westminster College, Pennsylvania) uses a group of faculty volunteers called the Research Professions Advisory Committee (ResPAC). The group regularly meets students interested in research careers, offers workshops and conducts mock interviews.