

The Benefits of Utilizing Undergraduate Research Opportunities in Clinical Laboratory Sciences Programs

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Learning Objective 1:

- Describe the importance of undergraduate research opportunities for students enrolled in Clinical Laboratory Sciences programs.

Learning Objective 1: Importance

- Students who want to do “research” get a chance to see what research is all about.
 - Some will fall in love and others will decide that research is not for them.
 - VCU promotes a “real world experience” for undergraduate students.
- Students get to learn techniques that we discuss but do not have time to do in the student laboratory.
 - Doing a technique often helps solidify the principle of that technique.
 - Western blot
 - ELISA
 - Reverse Transcriptase PCR

Learning Objective 1: Importance

- Students gain experience with troubleshooting.
 - Time constraints during student labs often lead to us helping them troubleshoot.
 - A research setting allows students to troubleshoot on their own.
- Students are more competitive for professional programs outside the department.
 - PhD programs are now looking for students who have research experience.

Learning Objective 2:

- Identify methods that can be used to promote student involvement in undergraduate research.

Learning Objective 2: Promoting Involvement

- VCU offers summer fellowships for undergraduates.
 - The Undergraduate Research Opportunities Program (UROP)
 - Students receive a \$1500 stipend and mentors receive \$500 for supplies.
 - Six week projects that we schedule around phlebotomy rotations
 - Our department has received 7 awards since 2010.
- 2016 Presidential Research Quest Fund
 - Two undergraduate researchers paid for 18 months

Learning Objective 3:

- Discuss the benefits that undergraduate research opportunities provide to both the student and the Clinical Laboratory Sciences department/faculty.

Learning Objective 3: Student benefits

- Learning additional laboratory skills
 - Techniques that are often only done by reference labs
- Opportunity to teach other students
 - Some students are interested in teaching later in their career.
 - First learn the technique and then teach other students in the research lab
- Presentation skills
 - Poster and oral presentation

Learning Objective 3: Student benefits

- Writing skills
 - The goal is to publish and any student who helps contribute to a publication will be added as an author.
 - A requirement of authorship is to help with manuscript preparation.
- Troubleshooting
 - When experiments do not work, it is up to the student to come up with a plan to determine where things went wrong.

Learning Objective 3: Faculty benefits

- Additional help to accomplish research goals.
 - Time is spent training the student but after adequate training they should be able to set up and run experiments on their own.
 - Experimental design should be approved by the PI.
- Assistance with research allows the faculty more time for teaching.
 - Heavy teaching loads make it hard to have time in the lab.
 - Students can keep things going in the lab during these periods.

Learning Objective 3: Department benefits

- Publications and presentations bring recognition to the department.
- Universities are promoting undergraduate research more than ever.
 - Research is spotlighted online to reach a very broad audience.
 - In Oct 2015 Molly Long (VCU, CLLS 2016) was spotlighted
 - Researches from the School of Medicine and School of Pharmacy contacted her PI in hopes of collaborating.
 - The article she was featured in was shared on the department Facebook page and it reached over 6,000 people.



Future Considerations

- Survey students and track to see how these opportunities have helped them after graduation.
- Get more funding so that more students can get involved!