Utilizing required PharmD projects and assistantships to engage students in research across disciplines

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BACKGROUND

Our Mission
Cedarville University School of Pharmacy equips student pharmacists to assess the comprehensive health needs of diverse patient populations through patient-centered care, servant leadership, ethical decision making, interprofessional collaboration, scholarly innovation, and continued personal and professional development.

Participation in research allows PharmD students to develop skills and abilities related to:

- Translating foundational knowledge to solve patient care problems and advance the health of patients (Standard 1.1)
- Collaboration as a healthcare team member (Standard 3.4 and 9.3)
- Communication within a group (Standard 3.6)
- Innovation and entrepreneurship (Standard 4.3)

Applicable required elements of the didactic PharmD curriculum

- Biostatistics - Students are able to evaluate the methodology and protocol of a study to appropriately address research questions
- Research design - Students are able to evaluate and create validity and reliability in a study

Our approach to student research involvement

- Required elements for all PharmD students:
  - Longitudinal research project
  - Optional extracurricular elements for PharmD students:
    - Complete a research project form to be matched with a project
    - Apply for a research assistantship
    - Work with the Center for Pharmacy Innovation on projects

RESEARCH ASSISTANT IMPACT

In 6 years, research assistants have contributed to:

National/State Presentations: 93
Published Abstracts: 74
Published/In-Press Manuscripts: 28

REFERENCES


PHARMACY PRACTICE & SAS - RESEARCH ASSISTANT PROGRAM

Application and Training
- An annual competitive application process is held for pre-pharmacy and professional students to be hired as research assistants
- Application includes essays regarding interest, a CV, and a letter of recommendation
- Applicants are interviewed by the program coordinator and a formerstructor assistant
- Train as research assistants
- Identify research assistant opportunities and refine skills that will be useful in multiple pharmacy career paths as well as in the program

Research Assistant Program
- Train students work full-time in the summer and then part-time during the academic year
- Faculty submit project-specific research assistant requests using a WPF form, detailing their needs and timeline
- Student and faculty interests are matched
- An experienced researcher is available to assist with projects as needed, particularly for faculty with less research experience
- Students gain research experience and the opportunity to participate in the entire research process, from writing grants to collecting data to poster presentations and publications
- Regular meetings are held with the program coordinator to provide oversight and management of student workload as well as additional training

Resources:
- A workspace and computers are provided for research assistants
- Funding is set aside to pay an hourly wage as well as support travel for dissemination of research

PHARMACitational SCIENCE - RESEARCH ASSISTANT PROGRAM

Training
- Research assistants are offered student-specific training depending on the needs of the faculty mentor
- Training may involve:
  - Working with an IACUC
  - Laboratory and handling of rats
  - Lab Procedures
  - Cell culture techniques
  - Protein assays
  - Isolation of RNA
  - Western Blot
  - Antibody & Cytokine Profiling
  - High Performance Liquid Chromatography techniques
  - Microscopic imaging
  - Students work throughout the year, depending on needs
  - Students gain research experience and participate in the entire research process, from writing grants to collecting data to poster presentations and publications

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PHARM D PROJECT IMPACT

25% of PharmD projects are collaborative

- In the first two cohorts, approximately 30% of projects were presented at the state/national level and over 25% were submitted to a journal for publication within 6 months of graduation
- Students showed a significant increase in their confidence in research-related skills from baseline to the end of P4 year (p<0.01)
- On a 4-point, Likert-type scale (1=Not useful, 4=Very useful), at the end of 4 years, students rated their perceptions of the usefulness of research in their profession as 3.82

THE GROUP PHARMD PROJECT...

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P1 Year Spring to P3 Year Fall Semester
- Obtain IRB/IRUC approval as appropriate
- Collect data
- Complete data analysis
- Meet with faculty advisor at least twice a semester
- Submit annual reports of progress
- Work on manuscript

P3 Year Spring Semester
- PHAR 7348 Research Seminar Course
- Students present completed project as a podium presentation to their classmates and to faculty
- Complete manuscript

Collaboration between Depts

Our approach to student research involvement

- Project-driven student-driven with faculty mentorship
- Research design
- Increased faculty scholarship
- Collaboration as a healthcare team member (Standard 3.4 and 9.3)
- Skills and abilities related to...
- Assess the comprehensive health needs of diverse patient populations
- Cedarville University School of Pharmacy equips student pharmacists to...