



**Northeastern University**

Bouvé College of Health Sciences

# Connecting PharmD Students to Research in Pharmaceutical Sciences Through a Research Capstone

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## Background

In 2012, our university revised the Pharmacy Capstone coursework to increase flexibility for students to complete a scholarly project in an area of their interest. Prior to this change, all students completed a project in economic evaluation as their capstone topic with a pharmacy practice faculty member.

Now, students register for a section of a 4-semester hour capstone course taught by a faculty mentor. During the course, students design, execute and present the results of a project related to the profession of pharmacy. Many types of projects are acceptable to fulfill the requirement, but all must include a mentoring faculty member and must result in specific deliverables:

1. an abstract,
2. a poster or platform presentation,
3. a written product such as a final report, manuscript, or grant proposal.

## Objectives and Methods

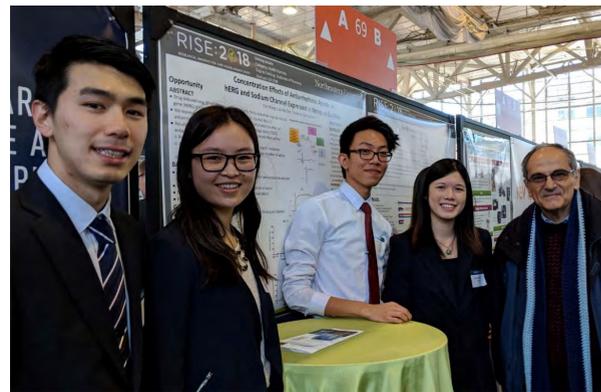
The objective of this presentation is to describe the extent to which students completed projects with pharmaceutical sciences faculty after the revision to the capstone course.

Information on types of projects and research discipline was collected from internal School of Pharmacy records for classes of 2018 and 2019.

## Results

For the class of 2019, 140 students submitted capstone proposals for 62 discrete projects. Twenty-one (34%) of these identified a faculty mentor from the Department of Pharmaceutical Sciences (PS). This was an increase from six PS projects for the class of 2018. Combined data for both cohorts showed involvement from six PS faculty (43% of the department) who worked with 55 students (20%). Nine of the PS projects (33%) were identified as bench/lab research, while the rest were applied in nature.

### Example Capstone Projects – Logothetis Laboratory



Capstone Projects included:

1. Characterization of different classes of antiarrhythmic drugs on the hERG and Nav1.5 channels.
2. Exploring effects of antipsychotic drugs on G-protein coupled receptors involved in schizophrenia, such as haloperidol for D2R, and atypical antipsychotics risperidone and olanzapine for 5-HT2AR.
3. Effects of glyburide on the pancreatic K-ATP channel.



## Participants' Thoughts

*“...these experiences have been unique for the students in helping them gain appreciation of what goes into pharmacological assessments for potency and efficacy of drugs and also has given them the chance to assess the literature on these characteristics of drugs and learn how to interpret prior studies to their own.”*

- Capstone Faculty Mentor

*“The pharmacy curriculum doesn't include a nutrition class, and the unique timing of pharmacy classes made it difficult to incorporate other nutrition courses available at Northeastern into my schedule. I am glad to have participated in this opportunity for self guided learning on a topic that I chose and consider to be of the utmost importance. I hope that our research can spark the creation of a nutrition course for pharmacy students at Northeastern.”*

- Capstone Student, class of 2019

## Conclusions

Introduction of a more flexible capstone model allowed interested PharmD students to work with faculty on projects related to PS. Distribution of projects may have been limited by faculty resources for student research or student interest in PS topics. Efforts to increase collaboration among faculty from different departments are underway.

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### Example – Group Capstone, Nutrition in Pharmacy with Dr. Miller



Thirty-seven PharmD students participated in a team capstone project to integrate physiological, pharmacological and social aspects of selected diseases with nutrition influences. Students groups prepared posters and “elevator talks.”

