A thoroughly interdisciplinary experimental technique was practiced to teach students how challenging scientific questions can be answered through the cross-fertilization of ideas and techniques from multiple disciplines.

A course themed on multidisciplinary approach was introduced for learning Optogenetics in Neuroscience for one semester (spring) at Drew University enrolling nine undergraduate students from various majors and grades. The content ranged from fundamental scientific concepts to introducing aspects of molecular and cellular biology, genetic engineering, biochemistry, modern physics and computational science.

The basic concept was first introduced under each subject followed by focus on the details using various study sources and teaching approaches. Supplemented by guest speakers from related field of research to add the current to the curriculum. The interesting part was introducing additional topics based on the interests of the students and instructor. At the same time, considering the diverse background of the students, the course was designed introductory enough for the neophyte yet attracting attention of the ones experienced on the topic.

To evaluate the outcome for this pedagogical challenge of managing enrolled students with varied interests and backgrounds was conducted with a questionnaire and the results were mostly positive. At the same time there were some who were overwhelmed by the quantity of information loaded onto them.

Why implement interdisciplinary approach?

- The approach can fill the missing puzzle piece by adding information from other field making an explanation more complete
- Exposure to various learning aids and the application of technology
- Can attract students from various background
- Expands interaction and knowledge at teacher and student level

...If this seminar were a food, the recipe would include “a little bit of everything”…

-Participant Student

…how do teachers expand their approach? …

➢ “…teachers need to integrate different approaches for students with varying level…” Alice Kim, hence not overburdening students
➢ “…limitation could be dealt with by discussing the science topics with different teachers from different fields…” Priyadarshini Singha

…further more,
Can all topics be taught through such an approach? Mostly they can be, but the crucial thing is planning the curriculum. Can we outline a general layout to proceed with this? Are there adequate online tools and softwares designed for many topics to be used for teaching and learning? May be we can create!

Lastly, “…this technique should be emphasized on, rather than the level of content that is being used…” Priyadarshini Singha, for the content can be designed as required.