

Engaging Undergraduates in RESEARCH and INQUIRY: A Scholarly Dialogue

The International Genetically Engineered Machine Competition (iGEM)

Course Instructor/Project leader

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Members

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Year 1-3 UG Students

Project/Course Objectives

1. To be proficient in literature searches to find information about the untested ideas of the project.
2. To be able to define clear viable project objectives and execute them accordingly.
3. To be able to manage the project on time and respond to unexpected factors which arise during the project.
4. To acquire the molecular biology laboratory techniques required for making the genetic constructs.
5. To work as a team, collaborate and communicate effectively among the team members.
6. To familiarize with the practice of synthetic biology, the limitation, various ethical issues associated within the field and its impact on applications in different fields.

Inquiry Based Learning Activities

Students had to:

- design a project and its objectives by searching through literature and discussing with the project leader who acted as a facilitator;
- search for experiment protocols before they could carry out the experiments;
- trouble-shoot when the experiments did not work.

How did you assess the effectiveness of students' learning?

As this was a competition, students were not directly assessed on their learning.

Students had to report their results and also discussed the next step forward with the project leader on a weekly basis.

The instructor who was based in the lab also checked if students were performing the laboratory techniques correctly.



What were the major outcomes of this project/course? Do they match with your objectives?

All students found the project had increased their desire to carry out research work as undergraduates.

Students were able to acquire the techniques quickly, read and understand journal papers and also plan their project carefully.

They worked as a team for over an extended period of six months, and put various knowledge acquired in class into real life practice.

At the Jamboree at MIT, students had to present to the other teams and judges which gave them an opportunity to demonstrate their communication skills.

The HKUST team won a gold medal which was a strong encouragement for them.