Teaching Innovation in an Inorganic Chemistry Class: A Term Project
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The Inspiration

- Keen “Entrepreneurship Across the Curriculum” Workshop.
  - Innovation can be taught.
  - The Innovative thinking process: NABC
    - N: Needs
    - A: Approach
    - B: Benefits/Costs
    - C: Competition
  - Anyone can become an innovator.
  - Innovation can be big or small.
The Course

- Required senior level Inorganic Chemistry course for Chemistry/Biochemistry Majors
- 4 credit lecture course taken along with a 1 credit lab course
- Main Topics:
  - Structures, Bonding Theories, Spectroscopy, and Reactions of Coordination Compounds including organometallic and bioinorganic compounds

The Objectives of the Project

- To inspire students’ innovative mindset.
- To provide an opportunity for the students to practice the innovative thinking process: NABC.
- To provide an opportunity for the students to learn the cutting edge real-world applications of inorganic chemistry.
The Project

- Pick an Area of Interest
- Perform Literature Search to learn the current state of development in the area.
- Write a Research & Development Proposal to do new research or to develop a new product or a new process in the area.
  - Using NABC format
- Give a Presentation on the proposal.
  - Students worked in groups of two or three.

The Process

- **Week 1:** Introduction to Innovation and NABC Thinking Process by the Instructor.
- **Week 3:** Submit the Topic (1st Classroom Discussion)
- **Week 6:** Submit the Summary of Literature Information (2nd Classroom Discussion)
- **Week 9:** Preview of the Proposal (3rd Classroom Discussion)
- **Week 11:** Presentation and Submit the Written Proposal (Q & A)
Results: My Assessment

- Students produced high quality proposals.
- Students had the opportunity to practice the process of innovative thinking.
- Students learned cutting edge real-world applications of inorganic chemistry.
- Enhanced student’s interest in learning the fundamentals of the class.
- Did not cost much classroom time. Did not have to delete topics normally covered.

The Results: Students Assessment

- 71% of the class strongly agreed/agreed that the project had helped to stimulate their creativity and innovative skills.
- 100% of the class strongly agreed/agreed that the project had helped them to learn real-world applications of inorganic chemistry.
- 71% of the students strongly agreed/agreed that the project had helped to enhance their critical thinking and practical problem solving skills.
Aknowlegement

- Keen Foundation
- Kettering EAC Workshop Organization Committee