A multistep synthesis project was effectively implemented in an Organic Chemistry II Laboratory course.

**Course Goal #1:** Students perform synthesis of organic molecules.

**Survey Question:** What did you see as the purpose of your lab?

**Results**

- **Lab Skills**
  - 25% "To gain experience and knowledge in basic organic chemistry lab techniques as well as to refine my lab efficiency."
  - 25% "The purpose was to learn laboratory techniques as well as see real life application of concepts/reactions taught in the classroom."
  - 10% "Apply concepts learned in classroom setting using hands on techniques."
- **Lecture Theory/Concept**
  - 35% "Using the IR machine and doing other lab techniques."
  - 6% "Applying the lecture material to a lab setting."
  - 1% "Sole focus on End Goal."

**Course Goal #2:** Students communicate experimental results in written reports.

**Survey Question:** What was the most useful skill you have learned when you were writing the final report?

- **Lab Skills**
  - 21% "The purpose was to learn how to write a scientific paper."
  - 27% "To gain experience and knowledge in basic organic chemistry lab techniques."
  - 15% "Apply concepts learned in classroom setting using hands on techniques."
- **Lecture Theory/Concept**
  - 12% "Using the IR machine and doing other lab techniques."
  - 12% "Applying the lecture material to a lab setting."
  - 5% "The lecture teaches us what is going behind the scenes of the reactions taking place."

**Course Goal #3:** The concepts students are taught in lecture are reinforced in lab.

**Survey Question:** Describe connections that you see between lecture material and the experiments that were conducted?

- **Student perceived purpose**
  - 11% "The lecture teaches us what is going behind the scenes of the reactions taking place."
  - 8% "Using the IR machine and doing other lab techniques."
  - 5% "Apply concepts learned in classroom setting using hands on techniques."

**Course Goal #4:** Students are introduced to green chemistry concepts.

**Survey Question:** List green chemistry concepts you learned this semester.

- **Lab Skills**
  - 56% "Green chemistry principles."
  - 27% "Green metrics mentioned in no metrics mentioned."
  - 12% "Sole focus on End Goal."
  - 5% "Efficiency of use of feedstocks."
  - 5% "Efficiency of use of waste."

---

**References**