

**Project Title:** Biodiesel Process Chemistry

**Project Mentors:** Dr. Michael Misovich , Engineering Department  
Dr. Moses Lee, Chemistry Department

**Project Description:**

Biodiesel is a fuel made from reacting a vegetable or animal fat with an alcohol in an esterification reaction. It is an alternative to conventional diesel fuel which is refined from petroleum. Hope College chemical engineering students are currently designing and building a small scale (approximately 100 gallon per batch) production facility for biodiesel fuel which will be made from recycled waste vegetable oil from campus Dining Services. In this REACH project, a student will investigate variations on the typical biodiesel process or investigate possible uses of the byproducts from the process by further chemical processing. The work will include learning about the chemical reactions that take place, including a review of the chemistry and chemical engineering literature on the subject, and chemistry laboratory experimentation to verify the reaction chemistry of a newly proposed process. If these laboratory experiments suggest that such a process may be feasible, it is possible that further work could be done in the production facility to produce test batches of an improved biodiesel product or byproduct.