

A GUIDE TO

Green Chemistry Experiments for Undergraduate Organic Chemistry Labs

Brought to you by Beyond Benign and My Green Lab through the generous support of MilliporeSigma



Overview of Resource Guide

In the organic chemistry laboratory, green chemistry serves as a means for reducing hazards and waste in the laboratory course, while maintaining the necessary rigor for teaching the subject. Through a partnership with [Beyond Benign](#), [My Green Lab](#), and [MilliporeSigma](#), a resource guide has been developed for integrating green chemistry in the organic chemistry laboratory course. It is our hope this will facilitate the widespread adoption of green chemistry in the standard undergraduate curriculum.

The purpose of this guide is to provide examples of green chemistry experiments that may serve as substitutions for classic undergraduate organic chemistry laboratory experiments. Discussions pertaining to the measurable benefits resulting from implementing greener alternative organic chemistry labs are provided, which include waste reduction, economic benefits, and hazard reduction.

For each experiment, a detailed experimental protocol is provided, along with an explanation as to why the substitution is considered to be more sustainable, and a TA guide complete with example lab questions. It provides multiple pathways for adopting greener labs and points faculty members to options that can be tailored to suit the needs of their own department, and their own courses. The guide also provides an assessment of some qualitative benefits of green chemistry implementation, including energy efficiency, use of renewable resources, and use of safer solvents.

While each experiment may stand on its own, they were designed to be highly modular to allow for facile adoption into existing curricula. We encourage you to use this guide as a starting point, and build upon this framework to suit the needs and unique format of your teaching laboratory.

Download Instructions

Contact us at Beyond Benign to receive a full copy of the Resource Guide:

Amy_Cannon@beyondbenign.org

Or, go to our partner's website, My Green Lab, to download a full copy:

<https://www.mygreenlab.org/gccg-form.html>

Feedback Wanted!

We would love to hear from you and how you are using the Guide. We would appreciate any feedback. Any future revisions will also include new labs identified by the community, so please contact us with any new innovations or labs that you would like to see analyzed: info@beyondbenign.org.