Year One Chemistry Research Initiative
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Problem
Research/inquiry courses are almost exclusively aimed at level 2 or above, with practical experience primarily limited to senior theses or capstone projects.

Precedent
Since the winter of 2009, over 65 students (>300 applicants) have participated in a Chemistry 1AA3 research program in-lieu of regular laboratory credit. Weekly meetings both outside and inside the laboratory take place. All ideas are student initiated and developed, including experimental design, which is carried out under the supervision and guidance of teaching assistants and instructors.

Purpose
➢ To provide 1st year chemistry students the opportunity to develop and execute their own self directed and novel research projects.
➢ Foster an environment that encourages creativity and problem solving in the sciences.
➢ Allow students to experience academic freedom.

Sample Projects to Date
➢ Biodegradable/bioderived elastomers.
➢ New inorganic polymers.
➢ Writable & conductive solar inks.
➢ Synthetic preen oils.
➢ Glucose sensing tattoo dyes.

Skill Development
➢ The scientific process.
➢ Literature searching.
➢ Advanced laboratory techniques & instrumentation.
➢ Critical thinking and problem solving.
➢ Accepting and providing constructive criticism.
➢ Technical writing and presenting.

Future Plans
➢ Continue to provide a unique research opportunity to chemistry students expanding to throughout the academic year.
➢ Encourage more 1st year research opportunities, including looking into the feasibility of a laboratory based inquiry course.
➢ Get students published.

Resources
Forward with Integrity funding, matched by the Faculty of Science will be used to outfit our first year chemistry laboratories in a manner that facilitates fundamental research in the chemical sciences. Currently, access to basic, yet pivotal equipment found in any research laboratory is a major hurdle in providing students the best opportunity to realize the outcome of their proposed project. In addition, having exclusive access to a well equipped laboratory will allow an increased capacity in an attempt to meet demand for this program.

CVL + pH Change Test

 enclave, pH of sample A

Forward with Integrity
McMaster University