RACE Program
A Research Awareness in Chemistry Education Program for 1st year BSc students at CBU

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RACE Program Overview

Research Awareness in Chemistry Education

• Volunteer program for 1st year BSc students
• 3rd annual RACE completed in 2011

- 2008/09: 9 participants
- 2009/10: 15 participants
- 2010/11: 25 participants

• 6 week program
RACE Program Details

- Small students groups: 2 to 5 students
- Weekly rotation among 6 research faculty for 1 to 3 h per week, arranged individually by each researcher and the group
- Program coordinator oversees RACE
- Small research projects/activities and hands-on involvement

**plus** each researcher can introduce his/her research program
RACE Program Details

Participating faculty ➔ whole Department of Chemistry is actively involved:

• Dale Keefe: Physical Chemistry
• Jaime Martell: Computational Chemistry
• Matthias Bierenstiel: Inorganic Chemistry
• Stephanie MacQuarrie: Organic Chemistry
• Godwin D’Cunha: Biochemistry
• Adango Miadonye: Petroleum Engineering
FTIR and FT-Raman: students analyze white powder in CSI style (sugar, Aspirin and Tylenol as samples)

Dr. Dale Keefe
Introduction to **computational chemistry**: student use Gaussian to build small molecules (water, CO$_2$ etc.) and look at vibration etc.

Dr. Jaime Martell

Introduction to **chemical engineering**: viscosity experiment with crude oil samples

Dr. Adango Miadonye
Research Projects

Introduction to **biochemistry**: horseradish peroxidase reaction of guaiacol ➔ UV/vis experiment

Dr. Godwin D’Cunha
Research Projects

Introduction to **inorganic chemistry**: students use inert-gas glovebox and 400 MHz NMR

Dr. Matthias Bierenstiel

Introduction to **organic chemistry**: students conduct a small organic chemistry experiment for PMO system.

Dr. Stephanie MacQuarrie
Preliminary Results

• RACE program is better during winter term than fall term
  - 2008/09: Fall
  - 2009/10: Fall
  - 2010/11: Winter

• inexpensive: cost about $250 for T-shirts and cake/refreshments for end-of-RACE party
Preliminary Results

- Group size of 2-3 is best → better scheduling, more interactions with researchers

Group size 4 to 5 → scheduling conflicts

- good recruiting tool: 5 of original 9 RACErs are conducting BSc (Chem) Honours Theses in 2011/12
What’s next?

- RACE program now established at CBU
  To date only anecdotal evidence for usefulness of RACE program
- Planning of pre- and post questionnaire

Call for collaborators: Other Departments of Chemistry are welcome to join

contact: Matthias_Bierenstiel@cbru.ca
- Open to further suggestions.
Acknowledgement

Faculty and Summer Research Students 2010
Mark your calendars!

STHLE 2013 at CBU
June 18-22, 2013
“Sustainability and Community”