Teaching in the Large Classroom

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• Find a seat. We will start at 1:00 pm
• Introduce yourself to your neighbours. 😊
• Share what you learned in earlier FGSR Teaching Week sessions (e.g., Preparing and Delivering Presentations)
Class Size

Maimonides Rule (12th century)

Twenty-five children may be put in charge of one teacher. If the number exceeds twenty-five but is not more than forty, he should have an assistant to help with instruction. If there are more than forty, two teachers must be appointed.

Effect of class size on student learning*

< 33 students: smaller classes promote learning
33-104 students: no effect
>104 students: negative effect

Lucy’s Big Lectures

• 150-200 students for 2nd year quantitative analysis
• 240-420 students for 1st year general chemistry

* Frances Woolley, Economy Lab, Globe and Mail Blog, Nov. 4, 2011
Issues in Large Enrollment Classes

• Student issues: isolation, motivation, diverse students, engagement, misbehaviour

• Course management: curriculum and course design, TA coordination, professional development

• Resource and institutional support: teaching and assessment resources, space and equipment, staffing

• Teaching and learning strategies

• Assessment: authentic assessment, providing feedback

Student Issues

• Isolation and anonymity

• Creating a supportive & respectful atmosphere
• Low risk humour*

* Ron Berk, “Professors are from Mars, Students are from Snickers,” Mendota Press, 1998.
Student Issues

• Isolation and anonymity

  - greater faculty-student interaction
    give them their name*
    - ask them
    - photos
    - visit labs
    - show up early & don’t rush off

  - greater student-student interaction
    - start of session today: introduction and discussion topic

Student Issues

- Motivation, diverse students, engagement
  - dynamic lecture
  - pen-in-hand
  - Diverse instruction style
    - change every 20 minutes
  - Student world examples
  - In-class activities
    - think pair share, problem solving
  - Example exam questions (and marking)
Student Issues

• Motivation, diverse students, engagement
  - dynamic lecture
  - pen-in-hand by adding extra info on slides
  - Diverse instruction styles
    - change every 20 minutes
  - Student world examples
  - In-class activities
    - think pair share, problem solving
  - Learner focused

Example exam questions (and marking)
Student Issues

• Misbehavior
  - Treat with respect, expect respect
    - respect instructor, respect classmates
  - Set ground rules, and stick to them
  - Control techniques:
    proximity
    stop lecturing
    sub vocalize
    stare down
  - Firm (in private)
Course Management

• Curriculum and Course Design
  - “borrow” notes from “good” instructor
    … then personalize
  - consult teaching mentor(s) and colleagues
  - 3 year plan to excellence

• TA coordination
  - provide clear expectations and guidance

• Professional Development
  - teaching, technology, assessment
Resource and Institutional Support

• negotiate to stay in same course for 3-4 years
• GTL, Centre for Teaching and Learning (CTL), etc.
• Learning Management System (LMS)
  
  - larger classes necessitate greater mastery
CHEM 102.INTRO UNIV CHEM II (E1 ---- Dr. Lucy)

DEPARTMENT OF CHEMISTRY
FACULTY OF SCIENCE, FACULTY OF SCIENCE, FACULTY OF SCIENCE, FACULTY OF SCIENCE

CHEM 102 Introductory University Chemistry II

Section E1; MWF 1:00-1:50 PM; CCIS 1-430

Instructor: Dr. Charles Lucy (charles.lucy@ualberta.ca)

Lecture TA: Zhendong Li (zhendong@ualberta.ca)
Final Exam marks are posted in your Grades. Average = 60.0, standard deviation = 19.1%, high = 95.4%, low 5.4%.

1 Unit 1: Chemical Kinetics
- Class Handouts
- Annotated Lectures
- Practice Problems

2 Unit 2: Equilibrium
- Class Handouts
- Annotated Lectures
- Practice Problems

2Mg(s) + CO₂(g) → 2MgO(s) + C(s)
Some Mg(s) is placed on a dry ice (solid CO₂) plate, and then ignited and covered with another plate of dry ice. The reaction is now vigorous. The white product is MgO while the black product is carbon (smoke) in its graphite form.

Molten KClO₃ is a very strong oxidizing agent, which oxidizes the sucrose in a gummy bear in a highly exothermic reaction.

Past demos: Thermodynamics of sweating (Non-burning money); Heterogeneous catalyst (coke and mentos; Genie in a bottle; Arrhenius behavior (glow sticks); Reaction order (iodine clock)
Student Issues

• Isolation and anonymity
  - greater faculty-student interaction
    give them their name*
    - ask them
    - photos
    - visit labs

  - greater student-student interaction

This forum is for asking and answering questions about the CHEM 102 course. Anyone can post questions and answers and, hopefully you'll get a quick answer from your classmates. Zhendong and I will monitor the forum on a fairly regular basis but can only guarantee that one of us will check it during office hours. (We will also check more regularly as we get closer to exams.)

### Discussion

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<tr>
<th>Topic</th>
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<th>Last post</th>
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<td>Orbitals of Complex Ions</td>
<td>Courtney</td>
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<td>Thu, 26 Apr 2012, 03:14 AM</td>
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<td>Help with Crystal Field Splitting theory</td>
<td>Tony</td>
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<td>Will the Real Chemist Please Stand Up?</td>
<td>Marina</td>
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<td>Very dilute acids/bases</td>
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Best but also most annoying, every Q&A email he receives he forwards to all.
Resource and Institutional Support

• negotiate to stay in same course for 3-4 years
• GTL, Centre for Teaching and Learning (CTL), etc.
• Learning Management System (LMS)
  - larger classes necessitate greater mastery

“When I arrived at UofA, I was under the mistaken impression that technology held all the answers to effective teaching.
... I am now of the opinion that technology is as relevant to effective teaching as the choice of font is to this sentence.”

Teaching and Learning Strategies
Resource and Institutional Support

Room

CAB 373
Resource and Institutional Support

Room

Scout your lecture room
Drive your lecture room
Adapt to your lecture room

CAB 273
Assessment

• Challenges: excessive marking loads, managing valid assessment, prompt feedback, minimizing dishonesty, consistency and accuracy in marking, higher order thinking, fairness

• Transparency authentic practice questions, example exam questions, old exams, practice questions

• Preparation in directing study, in writing exam, in preparing the TAs

• Formative multiple tests; on-line quizzes; in-class problems, out-of-class instructor-student and student-student feedback
Strategies for Effective Large Classes


• Create sense of community communicate a sense of caring and concern
  - guide students to take more responsibility for learning
  - encourage interaction and engagement
  - maximize ways students can interact with material

• Conservation
  Your time and energy is limited. Use it wisely.
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• visit a large lecture (with permission)