CHM 8304
PHYSICAL ORGANIC CHEMISTRY
Winter 2013

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**Please include CHM 8304 in the subject line of all e-mail! **

Web site: http://mysite.science.uottawa.ca/jkeillor/English/Teaching.html
Homework and course notes will be posted at this address.

Course schedule

Tuesday, 8h30 – 11h30 (Lamoureux 112)

Availability

Please feel free to make an appointment by e-mail, taking care to indicate CHM 8304 in the subject line. If there is significant demand during the semester, I will set office hours.

EVALUATION

Assignment*: 20% (Due **Tuesday, 5 February 2013**)

Take-home assignment of kinetic analysis.

Report*: 30% (**Tuesday, 12 February 2013**)

Written analysis of a literature article.

Final exam (cumulative): 50% (**Tuesday, 12 February 2013**)

Written exam based on all course notes.

* *Details to follow*.

Syllabus

(AD = Anslyn & Dougherty; LR = Lowry & Richardson; I = Isaacs)

1. Kinetic Analyses (AD 7; ??)
    a. Energy surfaces
    b. Transition state theory
    c. Postulates and principles
    d. Experimental kinetics
    e. Complex reactions
    f. Reaction coordinates

2. Kinetics and Thermodynamics (AD 8; ??)
    a. Isotope effects
    b. Substituent effects
    c. "LFERs" : Hammett, Taft, Swain-Scott and Brønsted

3. Catalysis (AD 9; ??)
    a. Thermodynamic considerations
    b. Types of catalysis
    c. Acid-base catalysis
    d. Enzymatic catalysis

Recommended reading (available in library)

Modern Physical Organic Chemistry, Anslyn & Dougherty
Mechanism and Theory in Organic Chemistry, Lowry & Richardson
Physical Organic Chemistry, Isaacs
The Physical Basis of Organic Chemistry, Maskill
Catalysis in Chemistry and Enzymology, Jencks
Advanced Organic Chemistry, Part A, Carey & Sundberg