Polymer Chemistry — Chemistry 214

Instructor: Severin T Schneebeli
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Office Hours: 10:30 – 11:30 AM MWF
Class Meetings: 8:30 – 9:45 AM, TR, Terrill-Home EC 308
Meeting Dates: 17 Jan – 5 May 2017
UVM Holidays: Classes will not be held on: 7 March (Town Meeting Day Recess) and 13 – 17 March 2017 (Spring Recess)

Primary Learning Objectives: Understand the variety of tools that chemists have at their disposal to design, synthesize, and analyze polymers.

Textbooks — On reserve at the UVM Bailey/Howe Libray:

(1)   George Odian, *Principles of Polymerization*, 4th ed., 2004, John Wiley & Sons, Inc, ISBN: 0-471-27400-3 — **Required**.

(2)   Charles E. Carraher Jr., *Carraher's Polymer Chemistry*, 9th ed., 2013, CRC Press, ISBN: 9781466552036 — Recommended.

600-Point Grading Scale:

Problem Sets	150 points	6 Sets — assigned bi-weekly
Examination 1	100 points	23 Feb 2017
Examination 2	100 points	13 Apr 2017
Presentation	100 points	2 & 5 May 2017
Final Examination	150 points	7:30–10:15 AM, 11 May 2017

Please note: The final examination will be cumulative!

Problem Sets:

Six problem sets will aid you in learning the class material and will prepare you better for the exams. They will be handed out approximately bi-weekly and are due **IN CLASS** on the date specified on each problem set.

Student Presentations:

In groups of two, students will give short (ca. 20 min + 5 min of questions) presentations to critically discuss a recent topic in polymer chemistry, described in the primary literature. A list of topics and articles to choose from will be provided during the course.

Course Grading:

Course grading will be structured according to a 600-point scale (*vide supra*). Failure to complete an assignment in a timely fashion will result in a numerical score of zero. Proposals for extra credit will not be considered.

Note-taking:

Skeleton notes and handouts from the literature will be provided in class and/or uploaded to blackboard. It is YOUR responsibility to fill in the missing key information discussed on the board or on the iPad during the lectures.

Academic Conduct:

Cheating or plagiarism will be condisered grounds for failing the course (a numerical score of zero). All graded assignments must be your own work. Cases of cheating or plagiarism will lead to further disciplinary action, which may include dismissal from the University according to the rules set forth in the University of Vermont's Code of Academic Integrity:
http://www.uvm.edu/~uvmppg/ppg/student/acadintegrity.pdf

Course Topics:

1. Introduction to Polymer Chemistry (Odian, Ch. 1)
2. Step Polymerizations (Odian, Ch. 2)
3. Chain Polymerizations — Olefin Free Radical (Odian Ch. 3)
4. Chain Polymerizations — Cationic Olefin (Odian Ch. 5)
5. Chain Polymerizations — Anionic Olefin & Copolymerizations (Odian Ch. 6)
6. Ring Opening Polymerizations (Odian Ch. 7)
7. Insertion Polymerizatiosn (Odian Ch. 8)
8. Modern Polymerizations — Olefin Metathesis & Living Radical Systems
9. Miscellaneous Topics, e.g. Self-healing or Self-immolative Polymers

Please note: Lectures and topics will be adjusted according to time considerations.

Religious Holidays:

Students have the right to practice the religion of their choice. If you need to miss class to observe a religious holiday, please submit the dates of your absence to me in writing by the end of the second full week of classes.   You will be permitted to make up work within a mutually agreed-upon time.

Student Learning Accommodations:

In keeping with University policy, any student with a documented disability interested in utilizing accommodations should contact ACCESS, the office of Disability Services on campus. More information (including contact information) can be found online at www.uvm.edu/access. ACCESS works with students and faculty in an interactive process to explore reasonable and appropriate accommodations via an accommodation letter to faculty with recommended accommodations as early as possible each semester.