

Chemical Systems I – 2614  
CHEM 3110 Section 1  
Winter Quarter, 2016



*Welcome to Chemical Systems I! This course will focus on the field of physical organic chemistry. We will cover topics associated with organic molecules' structure and bonding, strain and stability, and kinetic and thermodynamic analyses. Additionally, we will investigate how these principles dictate the way molecules react in processes such as additions, eliminations, rearrangements and substitutions. Catalysis will also be a thematic topic during the quarter. This course is designed for graduate and advanced undergraduate students.*

**Instructor:** Professor Bryan J. Cowen

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**Office:** Seeley G. Mudd, Room 132

**Lecture:** MWF 10:00 a.m. – 10:50 a.m., Boettcher Center West, Room 254

**Office Hours:** By appointment. Please e-mail me at least one day in advance.

**Textbook:** *Modern Physical Organic Chemistry*, by Eric Anslyn and Dennis Dougherty (Required)

**Exams:** There will be two 50-minute exams during the quarter worth 100 points each. The final exam will also be worth 100 points. If your final exam score is higher than either 50-minute exam score, the lowest score will be dropped and the final will count for 200 points. ***There will be no makeup exams. If you miss an exam for any reason, that exam will be dropped and the final will count for 200 points. The final exam is not optional.***

**Homework:** There will be graded problem sets throughout the quarter. These problems are intended to help you understand the lecture material and reading assignments more thoroughly. Homework will be worth 50 *total points* for the course. The lowest homework score will be dropped. Late submissions receive reduced credit (10 points per day late).

**Final Grade:** Your final letter grade will be determined out of 350 points and will be curved appropriately based on overall class performance.

**Lectures:** I will cover most material on the blackboard or whiteboard using three different colors. I would recommend bringing at least 3 colored pens/pencils to class. ***I will not post my lecture notes online. If you miss a lecture, please see a classmate for the notes.*** If PowerPoint slides are periodically incorporated in lecture they will be posted afterwards on Canvas.

**Academic Integrity:** I have high expectations for each and every one of you as students at the University of Denver. While I encourage group study sessions outside of class, I expect you to work independently during in class examinations. Any deviations from this policy will not be tolerated. For more information, please see the University of Denver's official Honor Code at: <http://www.du.edu/studentlife/studentconduct/>

*Preliminary Course Schedule – Subject to Change*

<b>Week #: Start Date</b>	<b>Topic</b>	<b>Reading</b>
<b>1:</b> 01/04/16	Chapter 1: Structure and Bonding	<i>pp 003 – 026 (1.1-1.2)</i>
	Chapter 2: Strain and Stability	<i>pp 052 – 059 (1.4-1.5)</i> <i>pp 065 – 128 (2.1-2.6)</i>
<b>2:</b> 01/11/16	Chapter 6: Stereochemistry	<i>pp 297 – 324 (6.1-6.6)</i>
<b>3:</b> 01/18/16*	Chapter 7: Kinetic Analyses <i>*01/18/16 is Martin Luther King, Jr. Day</i>	<i>pp 355 – 382 (7.1-7.4)</i>
<b>4:</b> 01/25/16	Review and Examination I (material through Chapter 6.6) <b>Exam I on Wednesday, January 27</b> Chapter 7: Kinetic Analyses (Continued)	<i>pp 382 – 407 (7.4-7.8)</i>
<b>5:</b> 02/01/16	Chapter 8: Thermodynamics and Kinetics	<i>pp 421 – 432 (8.1-8.1.4)</i> <i>pp 441 – 482 (8.2-end)</i>
<b>6:</b> 02/08/16	Chapter 9: Catalysis	<i>pp 489 – 531 (9.1-end)</i>
<b>7:</b> 02/15/16	Supplement: Lewis Base Catalysis	<i>Primary literature</i>
<b>8:</b> 02/22/16	Review and Examination II (material through Chapter 9) <b>Exam II on Wednesday, February 24</b> Chapter 10: Additions and Eliminations	<i>pp 537 – 607 (10.1-10.18)</i>
<b>9:</b> 02/29/16	Chapter 11: Substitution $\alpha$ to Carbonyl	<i>pp 627 – 636 (11.1-11.5)</i>
<b>10:</b> 03/07/16	Review and Final Examination (material through Chapter 11) <b>Final Exam on Thursday, March 10</b>	