

# Medicinal Chemistry: Research Techniques and Principles (16:663:501)

## Syllabus - Fall 2017

**Faculty:** Dr. Joseph Rice: Office: 320; Phone: (848) 445-5382; email: [jrice@rci.rutgers.edu](mailto:jrice@rci.rutgers.edu)

**Schedule:** Tuesday, Thursday 8:15 – 9:35 AM, PH 323A

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### A. Chemical Structure - 6 Lectures

- Bonding
- Stereochemistry
- Conformations

#### *Exam #1*

### B. Chemical Reactivity - 12 Lectures

- Thermodynamics, Kinetics, Isotope Effects
- Acids and Bases
- Substituent Effects
- Reaction Mechanisms - Additions
- Reaction Mechanisms – Eliminations

#### *Exam #2*

- Reaction Mechanisms – Substitutions
- Reaction Mechanisms – Pericyclic Reactions
- Reaction Mechanisms - Organometallic

#### *Exam #3*

### C. Research in Medicinal Chemistry – 6 Lectures

- Literature Searching
- Laboratory Safety
- Record Keeping
- Practical Aspects of Synthetic Medicinal Chemistry

#### *Exam #4*

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### Required Textbooks:

- *Modern Physical Organic Chemistry*, by E.V. Anslyn and D.A. Dougherty, University Science Books, 2006.
- *Advanced Practical Organic Chemistry, 3<sup>rd</sup> Ed.*, by J. Leonard, B. Lygo, and G. Procter, CRC Press, 2013.

### Recommended Additional Textbook:

- *Modern Organic Synthesis in the Laboratory: A Collection of Standard Experimental Procedures*, by J. J. Li, C. Limberakis, and D. A. Pflum, Oxford University Press, 2007.
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**Grading:** Four exams (4 x 100 pts) = 400 pts + Attendance/Punctuality (10 pts) + Preparedness (20 pts) + Class Participation (20 pts) = 450 points total

*It is expected that you attend all classes and be punctual.*

**Reading assignments (See Lecture Schedule) are to be completed before coming to class.**