The course will roughly follow the textbook (Medicinal Chemistry, The Modern Drug Discovery Process) with **extensive supplementary material** from the literature.

**Chapter 2: Drug discovery process**
- Target selection
- Lead discovery
- Lead optimization

**Chapter 3: A trip through the Body**
- Adsorption
- Distribution
- Pharmacodynamics
- Metabolism and elimination

**Chapter 4: Enzymes as drug targets**
- Mode of action
- Kinetics
- Inhibitors
- Covalent inhibitors/transition state analogs
- Pharmaceutical concerns

**Chapter 5: Receptors as drug targets**
- Receptors
- Receptor classification
- Types of ligands
- Receptor theories

**Chapter 6: Oligonucleotides as drug targets**
- Nucleic acids
- Oligonucleotide recognition
- Interference with nucleic acid synthesis
Chapter 8: Metabolism
   Metabolic reactions
   Metabolic issues
   Prodrugs

Chapter 9: Determining target structure
   Complementarity between a target and a drug
   Search for drugs
   Combinatorial chemistry

Chapter 10: Lead discovery
   Searching for hits
   Filtering hits to leads

Chapter 11: Lead optimization
   Pharmacophore definition
   Functional group replacements
   Alkyl group manipulation
   Isosteres
   Directed combinatorial libraries
   Peptidomimetics

Chapter 12: Lead optimization: Hansh Analysis
   Parameters
   Hansh equations
   Craig plots

ABOUT THE COURSE:

Lecture:
Attendance is mandatory for the lectures. If you miss a class, it is your responsibility to obtain the material covered during the class and get up to date with the announcement made. There will be handouts provided in class. This material will not be posted online.

You will be responsible for all the material we cover in the class and the corresponding chapters in the textbook.

Grading:
Midterm Exam  25%
Pop quizzes    15%
Final Exam     35%
Presentation   25%

During examinations, students may not use cell phones, laptops or tablets. Please bring your calculators. Cell phones must be kept out of sight and turned off.
**Student presentations** – Every student will present a current paper of their choice that focuses on medicinal chemistry. Papers from above journals are suggested but not limited to these. Each presentation will be roughly 25 minutes, followed by 10 minutes of discussions. The dates will be assigned later in the course.

Everyone should read the paper to be presented in class and have a general understanding of the key points of the paper. I will be asking questions BEFORE the presentations, the performance answering these will reflect on the presentation score that you receive.

Every presenter needs to prepare at least three questions to start in class discussion after the presentation. The presenter will be graded on the quality of these questions as well as the ability to address them. The peers will be graded based on the ability to answer my and the presenter’s questions.

These presentations will be graded based on the paper, content, clarity, slide quality, knowledge of the materials, and proper use of the presentation time and the performance during Q&A sessions.

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**Mid Semester Exam** – October 22, 2015 (during class)

**Final Exam** – December 15, 2015  8:00AM - 11:00AM  Obrian 210

**Presentation Schedule** – TBD

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**Make-up Policy:**
For all absences during the midterm and final exam, students must be prepared to document the reason for an absence if requested to do so. There will be no make-up exams. Since the final exam will be comprehensive, students who miss the midterm exam with a valid excuse will have their grade determined by the total points from their final exam and their presentations, re-scaled accordingly to accommodate the missed midterm exam. There will be no make-ups or adjustments for the missed pop quizzes; in the case of a valid excuse, the total grade for the pop quizzes will be determined by the remainder quizzes.

**Academic Integrity:**
Please see the sections below for the academic integrity policies at UB.
http://undergrad-catalog.buffalo.edu/policies/course/integrity.shtml
http://academicintegrity.buffalo.edu/integrity/violations.php
http://academicintegrity.buffalo.edu/faq/

The final course grade (A – F, including +/-) will be determined based on the total points accumulated. Students missing a midterm, without a valid excuse, will receive a grade of “0” for that exam. There will be no makeup at anytime for unexcused absences (see above for details). Students may receive an excused absence by providing a valid, written excuse within 48 h of the examination.