

## MEDICINAL CHEMISTRY

**Objective:** This combined upper-level undergraduate (Chem 458) and graduate (Chem 658) course presents the principles of medicinal chemistry.

**Class:** Wednesdays 4:30 p.m. - 7:30 p.m. in McCormack M01-0614.

**Prerequisite:** Organic Chemistry II (Chem 252 or equivalent).

**Instructor:**

Dr. Marianna Torok

Associate Professor of Chemistry

Phone: 617-287-6199

Email: [marianna.torok@umb.edu](mailto:marianna.torok@umb.edu)

Office: ISC 3420

Office Hours: Tu 2:00 p.m.-4:00 p.m. & Wed 9:00 a.m.-10:00 a.m., or by appointment.

**Primary textbook:**

Gareth Thomas, Medicinal Chemistry, 2<sup>nd</sup> edition, Jonh Wiley & Sons, Ltd., 2008

**Additional recommended textbook:**

Erland Stevens, Medicinal Chemistry The Modern Drug Discovery Process, 1<sup>st</sup> edition, Pearson Education, Inc., 2014

**Further reading materials on current research will be placed on the course website or distributed in class.**

**Course website:**

The course web pages are operated through [Blackboard Learn](#). Login at <https://umb.umassonline.net> with your UMB email credentials.

**Proposed class schedule:**

*(subject to change, except exam dates)*

| Date      | Topic(s)  |
|-----------|---|
| SEP 7     | General Announcements.<br>Introduction to drugs, their action and discovery.                |
| SEP 14    | Drug structure and solubility.  |
| SEP 21    | Structure-activity and quantitative structure relationships.<br>Computer-aided drug design. |
| SEP 28    | Combinatorial chemistry.  |
| OCT 5     | Drugs from natural sources.<br><b>Exam #1.</b>  |
| OCT 12    | Biological membranes.   |
| OCT 19    | Receptors and messengers.   |
| OCT 26    | Enzymes.  |
| NOV 2     | Nucleic acids.<br><b>Exam #2.</b>   |
| NOV 9     | Pharmacokinetics.   |
| NOV 16    | Drug metabolism.<br>Confirm the topic of your literature report (Chem 658 students only).   |
| NOV 23    | Complexes and chelating agents.<br>Nitric oxide.  |
| NOV 30    | An introduction to drug and analogue synthesis.   |
| DEC 7     | Drug development and production.<br><b>Exam #3.</b>   |
| DEC 14    | Review & Catch-up.<br>Submit your literature report (Chem 658 students only).               |
| DEC 16-22 | <b>FINAL EXAM (Exact date/time TBA)</b>   |
| DEC 23    | Emergency Snow Day  |

**Absence policy:**

Attendance to at least 75% of the classes is compulsory. Active participation is expected.

**Exams:**

Three hourly exams and a cumulative final exam are scheduled for the semester. The lowest score from the three hourly exams will be dropped. Attendance on exams is mandatory. There are no make-up exams. Your missed hourly exam will be your dropped exam. In case of any serious problem, contact me, preferably in advance.

**Literature report (required from Chem 658 students only):**

This independent assignment is to write an approximately 10-page in depth, written discussion of a recent medicinal chemistry problem related to any major topic covered during the semester. You will need to choose your topic according to your interest and email the proposed title of your literature report to me for approval by November 16, 2016. Your full report is due by December 14, 2016 and must be turned in electronically as a .pdf file via email. The grade received will be lowered by 10 points for each day the report is late. Avoid plagiarism! More information on this assignment will be provided during the first week of the course.

**Grading in Chem 458:**

The final grade is based on the two best hourly exams (*2X100 points total*), and the final exam (*200 points total*). The grade equivalences are as follows:

| <i>Points Earned</i> | <i>%</i> | <i>Grade</i> |
|----------------------|----------|--------------|
| 400-360              | >90      | A            |
| 359-344              | >86      | A-           |
| 343-328              | >82      | B+           |
| 327-312              | >78      | B            |
| 311-296              | >74      | B-           |
| 295-280              | >70      | C+           |
| 279-264              | >66      | C            |
| 263-248              | >62      | C-           |
| 247-232              | >58      | D+           |
| 231-216              | >54      | D            |
| 215-200              | >50      | D-           |
| below 200            | <50      | F            |

**Grading in Chem 658:**

The final grade is based on the two best hourly exams (*2X100 points total*), the literature report (*100 points total*) and the final exam (*200 points total*). The grade equivalences are as follows:

| <i>Points Earned</i> | <i>%</i> | <i>Grade</i> |
|----------------------|----------|--------------|
| 500-450              | >90      | A            |
| 449-430              | >86      | A-           |
| 429-410              | >82      | B+           |
| 409-390              | >78      | B            |
| 389-370              | >74      | B-           |
| 369-350              | >70      | C+           |
| 349-330              | >66      | C            |
| 329-310              | >62      | C-           |
| 309-290              | >58      | D+           |
| 289-270              | >54      | D            |
| 269-250              | >50      | D-           |
| below 250            | <50      | F            |

*Any grade lower than C automatically becomes F in Wisner.*

**Accommodations:**

The University of Massachusetts Boston is committed to providing reasonable academic accommodations for all students with disabilities. This syllabus is available in alternate format upon request. If you have a disability and feel you will need accommodations in this course, please contact the Ross Center for Disability Services, Campus Center, Upper Level, Room 211 at 617.287.7430. <http://www.umb.edu/academics/vpass/disability/> After registration with the Ross Center, a student should present and discuss the accommodations with the professor. Although a student can request accommodations at any time, we recommend that students inform the professor of the need for accommodations by the end of the Drop/Add period to ensure that accommodations are available for the entirety of the course.

**Code of Conduct and Academic Integrity:**

It is the expressed policy of the University that every aspect of academic life--not only formal coursework situations, but all relationships and interactions connected to the educational process--shall be conducted in an absolutely and uncompromisingly honest manner. The University presupposes that any submission of work for academic credit is the student's own and is in compliance with University policies, including its policies on appropriate citation and plagiarism. These policies are spelled out in the Code of Student Conduct. Students are required to adhere to the Code of Student Conduct, including requirements for academic honesty, as delineated in the University of Massachusetts Boston Graduate Catalogue and relevant program student handbook(s). [UMB Code of Student Conduct](#)