Chemistry 741 Classics in total synthesis Spring 2020: Syllabus

General:

Instructor: Dr. Alexander Arnold
Office Room: 372c Chemistry Building
Office Hours: By appointment
Email address: arnold2@uwm.edu
Lecture: MW: 1:00-2:15 pm, room: CHM 195
Official start date: Wednesday, January 22nd 2020

Description:

This course provides an understanding of art of total synthesis using organic reaction cascades and protections group strategies. We will use Nicolaou's series of books "Classic in total synthesis I-III" to discuss several examples how to develop the synthesis of complicated molecules. In addition, we will discuss the principle of protections groups and their stability and application. Stereocontrol is very important for the synthesis of natural product and we will discuss how different synthetic strategies will allow us to make complicated organic molecule with several chiral centers. Finally, I will show you how to use SciFinder to harvest the vast amount of knowledge that organic chemist has accumulated during the last centuries and to apply this knowledge to design the synthesis of new compounds. This is an interactive course, where students will apply their knowledge in class to come up with new synthesis strategies. Thus, this course is directed to students who are interested in fields of organic chemistry and medicinal chemistry

Course Load:

The student is required to attend class CHEM741 scheduled for two times 75 minutes per week and urged to spend at least the double amount of time to read the textbook and other source indicated.

Textbook:

Optional:
Classics in total synthesis III, Jason S. Chen, K. C. Nicolaou, Wiley, 9783527329571
Classics in total synthesis II, S. A. Synder, K. C. Nicolaou, Wiley, 978-3527306848
Classics in total synthesis, E. J. Sorensen, K. C. Nicolaou, Wiley, 978-3527292318
Fourth Edition of Greene's Protective Groups in Organic Synthesis, Wiley, 978-0471697541

Final exam:

Instead of a written exam, I will assign each student a complex organic molecule. The task for the student is to develop a synthesis strategy for this molecule and write a three page summery describing the possible problems and advantages of the developed strategy. Additionally, each student will present his strategy in a form of a power point slide show within 20 minutes to the class. The grade for this class will be based on the report (70%) and the presentation (30%).

Policies:

UWM: You must follow the policies and procedures outlined in the current Schedule of Classes.
See: http://www.uwm.edu/Dept/SecU/SyllabusLink.pdf
Department of Chemistry: You are expected to fully understand the policies posted on the bulletin boards across from CHM 195 and adjacent to CHM 164.
Drop, Section Change: Most changes can be made on PAWS. Make sure you check-out of laboratory to avoid having a "hold" placed on your records.
Incomplete: An incomplete can be given only to a student who has been doing satisfactory (C or better) work but who is unable to continue attending the course for a reason judged valid. The request for an Incomplete must be accompanied by documentation.

Academic Dishonesty: Cheating on an examination or other graded material will result in a grade of zero as a minimum consequence. Failure in the course and referral to the Dean may also occur. In short, academic dishonesty in any form will not be tolerated.

Disclaimer:

Teaching policies and regulations for this course are not open for discussion or negotiation. This syllabus has been constructed to be as complete as possible but is by no means a binding document. I reserve the right to alter policies and regulations as needed.