

Dear Course participant,

It is a pleasure to welcome you to the Master/PhD course "Syntesekemiske metoder" which will take place from Monday the 2nd of August to Friday the 13<sup>th</sup> of August 2020 from 9.00 to 17.00. Meeting point first day is room B404 (also called building 01, fourth floor), situated at fourth floor building B at the H. C. Ørsted institute.

JULY 26, 2021

The course will be organised in a way such that everyone is in teams of two students (we will assign teams). When the course starts we will give each team a list of syntheses your team can carry out and recipes for the syntheses. We will also have a list of supplementary problems. You are welcome to add or replace syntheses on your team list with problems from the *supplementary problems* list. The will be updated in the next couple of weeks to include a full program.

**UNIVERSITY OF COPENHAGEN**  
**DEPARTMENT OF CHEMISTRY**  
UNIVERSITETSPARKEN 5  
DK-2100 COPENHAGEN  
DENMARK  
www.kiku.dk

The lectures deal with practical aspects of organic synthesis, such as: important unit operations, handling of butyl lithium and similar sensitive reagents, Schlenck technique, microscale synthesis, microwave synthesis, modern organic chemistry in the industrial setting, choice of bases in organic synthesis, choice of metals in organometallic reactions, flow-chemistry and chromatography.

Teachers will be Michael Pittelkow (Science) and Frederik Diness (Science). In addition, lectures will be presented by invited guests.

Reading the books '*Advanced Practical Organic Chemistry*' by Leonard, Proctor and Lygo and the new book '*Håndbog i synteseteknikker*' by Becker, Begtrup and Nielsen is recommended but not mandatory.

During the course short reports for each completed synthesis must be handed in and at the end of the course a short essay – perhaps together with a short video illustrating key synthetic methodologies used - must be handed in. Evaluation of these written assignments will form the basis of the grade (pass/fail). Each student must hand in an individual report.

This year we will try to test if the combined team of students in the course can carry out a small piece of combined research. The idea is to do 'teaching based research'. We have identified a trend in modern synthetic chemistry that we will centre this around. This year we will try to test a 'new' photo-redox catalyst based on a molecule that is being worked on in the department for other applications (the molecule is called 'trioxatriangulene'). In a previous year a student used this molecule as a photo-redox catalyst for the Newman-Kwart rearrangement reaction (see: [http://pittelkow.kiku.dk/synmet/synmet\\_videoer/Nina%20photoredox.mp4](http://pittelkow.kiku.dk/synmet/synmet_videoer/Nina%20photoredox.mp4)).

As part of the evaluation of the course each team must identify another type of reaction to test this catalyst on, and to write a full experimental procedure for this reaction. The task is to identify, prepare substrate(s) and test/optimize these reactions using the catalyst. I would like for all of you to consider which reaction may be appropriate to test, and then you + your lab partner and you can choose which task to carry out during the course. More info when the course starts!

Recall bringing favourite spatulas, magic stick, lab coat (mandatory) and protecting glasses.

Best regards

Frederik Diness and Michael Pittelkow