BB2460 Biocatalysis 7.5 credits

Biokatalys

Course syllabus for BB2460 valid from Autumn 10

This is a translation of the Swedish, legally binding, course syllabus.

Grading scale: A, B, C, D, E, FX, F
Education cycle: Second cycle
Main field of study: Biotechnology

Intended learning outcomes

After passing the course, the student should:

- Be able to exploit and apply knowledge from basic biotechnology and chemistry courses to design enzymatic processes for industrial production of chemical products.
- Be able to distinguish reaction mechanisms of enzymes from the different main classes and be able to decide which chemical reactions that enzymes from a certain class can exhibit.
- Be able to explain and exemplify different enzyme-catalyzed processes for stereoselective chemical production. For example, kinetic resolution, dynamic kinetic resolution, and stereoselective synthesis, and also be able to suggest strategies for optimization.
- Recognize advantages and disadvantages of different reaction media for enzymatic reactions and be able to decide suitable reaction conditions in individual cases.
- Be aware of the Swedish and foreign industry which uses enzymatic processes and be able to exemplify products and types of enzymes used.
- Be able to incorporate research literature and be familiar with the search tools for electronic databases which are available at KTH.

Course main content

The course is compulsory for students at the advanced level within Industrial & Environmental Biotechnology, but is also aimed for exchange students and others with prerequired knowledge. It consists of lectures, exercises and a project assignment which includes searching for literature, labs and a seminar. The course's lab portion is designed, planned and documented by the students themselves and is a part of the project assignment. The entire project assignment is presented in a seminar at the end of the course.

Language of instruction

Language of instruction is specified in the course offering information in the course and programme directory.

Eligibility

Literature

Review articles according to the course PM. Recommended course text: Peter Grunwald, BIOCATALYSIS - Biochemical Fundamentals and Applications, Imperial College Press 2009. ISBN 978-1-86094-771-1

Examination

- LAB1 - Laboratory work, 1.5 credits, grading scale: P, F
- TEN1 - Examination, 4.5 credits, grading scale: A, B, C, D, E, FX, F
- ÖVN1 - Exercises and seminarium, 1.5 credits, grading scale: A, B, C, D, E, FX, F

- INL1 - Literature Task, 1.5 credits, grade scale: A, B, C, D, E, FX, F
- LAB1 - Laboratory Work, 1.5 credits, grade scale: P, F
- TEN1 - Examination, 4.5 credits, grade scale: A, B, C, D, E, FX, F

Requirements for final grade

Written examination (TEN1; 4,5 credits, grading scale A-F)
Laboratory exercises (LAB1; 1,5 credits, grading scale Pass/Fail)
Literature task (INL1; 1,5 credits, grading scale A-F).