Sveriges lantbruksuniversitet
Swedish University of Agricultural Sciences

SLUkurs

Syllabus

PFS0169 Experimental Design, 4.0 credits

Syllabus approved

2020-01-17

Subjects

Biology

Education cycle

Third cycle

Grading scale

Pass / Failed
The requirements for attaining different grades are described in the course assessment criteria which are contained in a supplement to the course syllabus. Current information on assessment criteria shall be made available at the start of the course.

Language

English

Prior knowledge

MsC or PhD students in biology, chemistry, forestry, engineering, energy science

Objective, including learning outcomes

The course aims to give basic knowledge needed for selecting and analyzing an appropriate experimental design that with minimal experimental cost can provide maximum knowledge about a system. Standard examples from handbooks are used

to introduce practical aspects and lead to an understanding of the more advanced research examples.
After the course the students will be able to:
-determine important factors and responses for natural and industrial systems
-construct a worksheet containing planed experiments in the selected factors
-calculate a regression model and study its diagnostics
-carry out screening and optimization
-construct response surfaces and use them for optimization
-use software for experimental design

Content

Statistics and distributions, analysis of variance, regression modeling, factorial and fractional factorial designs, other screening designs, response surface designs, D-optimality, mixture designs, blocking, multiple responses, sampling considerations, advanced topics.

Requirements for examination

Oral examination

Additional information

This is a self-study course. The lecture/exercise/discussion sessions are concentrated in blocks and between the blocks reading and calculation assignments are given. Experienced guest lecturers will be used for some topics.

Responsible department

Department of Forest Biomaterials and Technology