HALMSTAD UNIVERSITY
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School of Business and Engineering

SYLLABUS
-translated from Swedish

Course Code: ER8018 / 1,1

Scientific Methods Oriented Towards Natural Sciences, 7.5 credits

Vetenskapliga metoder med naturvetenskaplig inriktning, 7.5 hp

Second level
Main field: Energy Engineering A1N
Syllabus is adopted by the Research and Education Board (2015-02-24) and is valid for students admitted for the autumn semester 2014.

Placement in the Academic System

The course is included in Master's Programme in Renewable Energy Systems

Prerequisites and Conditions of Admission

Course Objectives

The course aims for practice and knowledge about research methods, statistical analyses of data within natural sciences, training in critical evaluation of research results with special focus on applicability within the main field, as well as familiarity with the scientific way of thinking, statistics and anlayzes. The course should also give insight into research areas within the main field.
Following successful completion of the course the student should be able to:
Knowledge and understanding

- Show insight into research areas within natural sciences
- Show familiarity with the scientific way of thinking and solving problems with relevance to the main field
- Show understanding of statistical analyses and their theoretical basis

Skills and Ability

- identify and characterize issues from the main field on a qualified level based on scientific thinking
- design a scientific study with for the main filed relevant research questions

Judgement and Approach

- Do qualified judgments and assessments in the main field based on an understanding of research method and statistical analyses
- Critically evaluate natural sciences based on an understanding of research method, statistical analyses and ethical aspects

Primary Contents

Theoretical part:

Connections between fundamental and applied science. Scientific method.

Methodological part:

Research methods. Methods for analyzing data within the main field. Research question and design. Statistical methods applicable within the main field.

Teaching Formats

The teaching includes exercises, teacher advised discussions, lectures and seminars.

Examination

The overall grades of Fail, Pass or Pass with distinction will be awarded for the course.
Examination is based on written reports, seminars and written examination

Course Evaluation

Course evaluation is part of the course. This evaluation should offer guidance in the future development and planning of the course. Course evaluations should be documented and made available to the students.

Course Literature

Laake, P. Benestad HB. Olsen, BR. Research Methodology in the Medical and Biological Sciences. Academic Press, Elsevier,

London 2007

”Statistic methods applied in natural science”, compendium with worked examples by J. Hylander, SET, Halmstad 2014.

Scientific papers relevant for the main field. Supplementary literature and exercises. Handouts.

Supplementary Liteature

Harrad, S et al. Student Projects in Environmental Science. Wiley 2008 (Paperback)
or
Vincent WJ. Weif JP. Statistics in Kinesiology. 4rd ed. Human kinetics Publishers, Illinois, 2012