



Course syllabus

Faculty Board of Science and Engineering
School of Natural Sciences

4MX007 Geografisk information med speciell inriktning mot marin forskning och utveckling, 3 högskolepoäng

Geoinformation with special reference to Marine/ Coastal Research and Management, 3 credits

Main field of study

Environmental Science, Biology

Subject Group

Environmental Science

Level of classification

Second Level

Progression

A1F

Date of Ratification

Approved by the Board of the School of Natural Sciences 2010-12-03

The course syllabus is valid from autumn semester 2010

Prerequisites

To be accepted to the course the candidate must be accepted as a Ph.D. student in a science related subject at a university in EU.

Expected learning outcomes

The course aims to give the participants:

1. Specific theoretical and practical knowledge in the area of GEO-information and Remote Sensing;
2. Skills how to use the available techniques in different applications in research in marine and coastal environments;
3. Knowledge about the possibilities and limitations of different software and applications in remote sensing;
4. Knowledge about different GPS systems and techniques and their applications;
5. Theoretical and practical knowledge about geo-information applications in specific cases of marine and coastal research;
6. Knowledge about relevant international programs and institutions and the use of virtual globes.

Content

The course content contains the following:

- The Theory of Geo-Information and how it can be used
- What is a Geographic Information System?

- What is Spatial Analysis?
- What are the data used in a GIS?
- What software is used for GIS: free software, commercial software? Accuracy v.s. cost. Availability.
- What type of Output comes from GIS?
- What are the main GIS applications?

Practical training:

- The use of vector data and raster imagery (satellite image) using GIS Software
- Finding free data on the web
- Making spatial queries in GIS
- Creating country scale maps and coastal local maps
- GPS

Type of Instruction

The course is given in the form of lectures, practical group activities and demonstrations, and an individual project work. Participation is mandatory.

Examination

The course is assessed with the grades Fail (U) or Pass (G).

Examination is based on presence and participation in lectures, group activities and demonstrations, and a written report plus oral presentation.

Course Evaluation

After the last teaching occasion a written course examination shall be performed. The teacher, responsible for the course, ensures that the students get access to appropriate forms for the evaluation. The course evaluation is summarized by student representatives on the course. From the summary, it shall be evident what changes will be implemented as a result of the course evaluation. The representatives of the students obtain a copy of the summary whereas one copy is archived.

Required Reading and Additional Study Material

Required reading

FAO Geoportals

<http://www.fao.org/geonetwork/srv/en/main.home>

International Ocean Color Coordination Group

<http://www.ioccg.org/>

GIS for Fisheries Management

<http://www.fao.org/fishery/gisfish/>

Review Questions for Lectures on GIS definitions and GIS data models

<http://www.ggy.uga.edu/courses/geog4370/reviewq-sum04.html>

Sweden - UNESCO - IOC - Marine Spatial Management

http://www.unesco-ioc-marinesp.be/msp_practice/sweden

Coastal LIDAR

<http://www.csc.noaa.gov/digitalcoast/data/coastallidar/index.html>

ESRI website

<http://www.esri.com/>

European Space Agency Remote Sensing Training

http://www.tiger.esa.int/TrainingCds/cd_01/content_2/sez_2_4/pg2_4_01.htm

Sea surface temperature from satellite images

<http://www.ymparisto.fi/default.asp?node=11779&lan=en>

Shoreline Mapping

http://coastalmanagement.noaa.gov/initiatives/shoreline_ppr_research.html

GIS Baltic

<http://gis.ekoi.lt/gis/>

European GMES Marine Service:

<http://www.myocean.eu/>

Coastal Oil Spill Response

<http://response.restoration.noaa.gov/>