Syllabus – Agriculture and Ecosystem Services

Module M.SIA. Summer semester 2020

NEW version adapted to Corona circumstances

Dates: 22nd April 2020 to 15th July 2020
Time: Wednesdays from 10.00 to 13.00
Place: Online classes and when possible again in Room H11, Steinstraße 19, Witzenhausen
Moodle: https://moodle.uni-kassel.de/moodle/course/view.php?id=2471

1. Course description:

Through a series of seminars and field practices, this course will introduce students into the concepts of ecosystem services (ES), with a particular focus on their relevance for agriculture and other land uses. The course aims to foster the ability of students to assume an interdisciplinary research perspective by considering agro-ecosystems as social-ecological systems and by applying an integrative approach that combines multiple spatial scales (farm-scale and landscape-scale) and integrates biophysical, socio-cultural and economic approaches. The module is structured in two main blocks:

1- Introductory block
In this section students will learn the main concepts around ecosystem services and their relevance for agroecosystems. After an introductory session on ES, each of the following sessions will focus on a different approach for mapping and assessing ES (biophysical approaches, economic valuation and socio-cultural valuation).

2- Practical block
In this block students will learn and apply a combination of biophysical, socio-cultural and economic techniques for mapping, assessing and valuing ES. For that purpose, students will be asked to collect primary data on ES (depending on the COVID-19 situation the data collection might take place from home), which will then be analyzed in class. Each of the sessions will be focused on a specific analytical domain covering geospatial analysis, analysis of quantitative data and analysis of qualitative data.

Find more information in our moodle: https://moodle.uni-kassel.de/moodle/course/view.php?id=2471

Classes will take place **every Wednesday from the 22nd of April till the 17th of June**, starting at 10.00 and finishing at 13.00, using a digital platform (to be decided). In the introductory block we will start each session with one hour of theory presented by the lecturers, followed by a 20 minutes presentation of a relevant case by an external expert. The last part of each session will be use to carry out some interactive exercises with the students.

2. Detailed Program of the course

Session	Day	Topic	Content
1	April 22nd	Introduction	Course overview Introduction to the concept of Ecosystem Services (ES)
2	April 29th	Biophysical approaches	Biophysical approaches Links between Biodiversity and ES
3	May 6th	Economic approaches	Monetary valuation approaches Payments for ecosystem services (PES) Controversies in monetary valuation
4	May 13th	Socio-cultural approaches	The plural value of nature Methods for socio-cultural assessment and mapping
5	May 20th	Practical block	Introduction to the practical block
6	May 27th	Practical block – 1	Biophysical assessment – ES Matrix
7	June 3rd	Practical block – 2	Social-ecological inventory – GIS analysis
8	June 10th	Practical block – 3	Socio-cultural valuation – Free listing
9	June 17th	Practical block – 4	Economic valuation – Contingent analysis
10	June 24th	Group work	The groups will work independently with optional support in group meetings
11	July 1st	Group work	The groups will work independently with optional support in group meetings
12	July 8th	Group work	The groups will work independently with optional support in group meetings

3. Lecturers: Dr. María García-Martín and Dr. Mario Torralba (coordinators), Dr. Miguel Ángel Cebrián-Piqueras, MSc. Lukas Flinzberger, Dr. Cristina Quintas-Soriano.

4. Evaluation: Individual assignment (30%), Group assignment (70%)

Individual assignment: students will select a topic of their interest from a list of proposed topics by the lecturers and prepare a short video presentation (10 minutes).

Group assignment: students will work in groups of 4 to carry out the following ES assessment practices:

1. ES Matrix
2. Socio-ecological inventory of ES
3. Economic and socio-cultural valuation of ES in the German orchard meadows.

Deadline for submission of the group and individual assignments is the 16th of July at 23:59.

5. Requirements:

To register for this course please send an email to María García-Martín (maria.garcia-martin@uni-goettingen.de). The number of students will be limited to 20 on a first come, first serve basis (SIA master students will be given priority).

We will be analyzing data using some statistical and Geographic Information Systems software such as ArcGIS, Excel and SPSS. No previous knowledge is required, but familiarity with Excel is recommended.

6. Contact information:

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FB11: Division of Social-Ecological Interactions in Agricultural Systems

Schedule for individual or group meetings with lecturers: Mon-Fri from 9:00 – 16:00 with previous appointment

7. Course materials:

Each session will be supported by specific materials that will be uploaded in the Moodle prior to the class. As overarching supporting materials we also recommend the following:

- Potschin, M., Haines-Young, R. H. (Roy H. ., Fish, R., & Turner, R. K. (2017). Routledge handbook of ecosystem services. Routledge.
- Burkhard, B., & Maes, J. (2017). Mapping Ecosystem Services. (B. Burkhard & J. Maes, Eds.), Advanced Books (Vol. 1). Pensoft Publishers. https://doi.org/10.3897/ab.e12837