# **Elective 4:** Ecological Modelling Non Timber Forest Products and Bioresources

Module No.	Module name	
	Ecological Modelling	
Module coordinator		
Dr. Helmer Schack-Kirchner Email: Helmer.Schack-Kirchner@bodenkunde.uni-freiburg.de		
Additional teaching staff		
Prof. Dr. Hildebrand, Dr. Gerald Kändler (FVA), Dr. Felix Knauer		
Syllabus		
What is modelling?		
Introduction to theoretical ecology		
Modelling Tools		
System Analysis and algorithmic thinking, basics principles of cybernetics		
Differential equations		
Introduction to computer programming with modelling examples		
Implementation of simple ecological models		
- humus dynamics ,- carbonate weathering		
- temperature regime in soils, transport of water and matter in soils		
- population models		
- cellular automats		
- point processes		
- Markov processes		
- brief introduction to related topics: fuzzy logic, fractal geometry, deterministic chaos		
Learning goals and qualifications		
Ability to assess and critically evaluate_existing models		
Understanding systems and their components		
Ability to translate rules and statistical relationships into algorithms		
Ability to analyse (dynamic) processes and recognize essential functional and structural relationships and interdependencies as well as dynamics		

Ability to implement and use simple models to test hypothesis

Teaching and learning methods		
Lecture (10%), CBT + Lecture (40%), CBT Exercises 40%		
Prerequisites		
Requirements for regi	stration	
Distribution of work lo	ad	
Contact hours	80 h (Lectures, pracs, excursion, exam)	
Student learning	45 h (Preparation, reading etc.)	
Proposed assessment		
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Link to learning resou	rces	
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Preliminary Reading		
Comments		

Module No. (P/WP)	Module name
WP 6	Non Timber Forest Products and Bioresources

### Module coordinator

Prof. Dr. M. Boppré <boppre@fzi.uni-freiburg.de>

#### Additional teaching staff

Prof. Dr. I. Storch, Prof. Dr. G. Becker, Prof. Dr. H. Schanz, Prof. Dr. S. Fink, Prof. Dr. U. Schmidt

### Syllabus

"Bioresources" are the products and benefits from ecosystems and their plant and animal populations- to be used sustainably by people, including "non-timber forest products" in the well established meaning.

Bioresources can be classified as usable, useful or hazardous, which can directly (e.g. meat; fruits; pathogens) or indirectly (e.g. pollinators; pests) affect human needs and interests. The spectrum reaches from protozoa as pathogens to hunting and ecotourism.

Animals, plants and fungi do have numerous impacts on man; basic understanding of ecological principles in the light of management goals treated to help harnessing bioresources. Therefore, markets of bioresources as well as to historic and ethical aspects will be considered.

## Learning goals and qualifications

Different types of NTFPs and bioresources will be characterised, and their management will be studied. Drawing attention to new and innovative ways of generating income by using NTFPs and bioresources is the main goal of the course.

Analysing case studies will lead to the identification of new products from ecosystems.

Students will appreciate the difficulty in marketing some NTFPs and bioresources.

## Teaching and learning methods

Lectures, self-study, seminars, groupwork

## Prerequisites

none,

recommended: propaedeutic self-study according to list of keywords

Requirements for registration

None

#### Distribution of workload

*Contact hours* 50 h (lectures, exam)

Self-stuy 75 h (preparation, reading)

#### Proposed assessment

Written exam

## Link zu Modulunterlagen

http://www.fzi.uni-freiburg.de/lehre/.....

Literatur

Berenbaum MR (1996) Bugs in the System: Insects and Their Impact on Human Affairs. Helix Books

Freese CH (1998) Wild Species as Commodities. Washington DC: Island Press UBFR NA 99/392

Lewington A (1990) Plants for People. London: The Natural History Museum London

Bemerkungen