

BRIEF OUTLINE COURSE TROPICAL FORESTRY (2,5 YEARS)

STARTS AFTER 1,5 YEARS GENERAL STUDY FORESTRY / NATURE MANAGEMENT

Course co-ordinator: Jaap de Vletter, e-mail: jaap.devletter@wur.nl

(1) Program overview (status: April 2008)

Second Year:

3rd period (January-April): **Rural Resource Management (RRM)**

- Agroforestry
- Rural development
- Plant, Water and Soil Relations (soil and water conservation, tropical soil science, tropical plants)
- Land evaluation
- GIS
- Land use plan and farm management plan

4th period (April-June): **Tropical Field Research (TFR)**

- Tropical Forest Ecology 1
- Introduction to Research Methods
- Social Research Methods
- Ecological Research methods: bio-physical research methods or biomonitoring
- Statistics, integrated in ecological research methods
- Research Proposal Writing
- Field work

Third Year:

1st period (September-November): **Costa Rica Reforestation Project (CRR)**

- Tropical Forest Ecology 2
- Tropical Plantation Forestry
- Forest Investment Analysis
- Non-Timber Forest Products
- Costa Rican Reforestation Project

2nd period (November-January): **Capita Selecta Tropical Forestry and Nature Management (CS)**

- Forest Policy
- Currently Important Issues
- Tropical Silviculture
- Tropical Nature Management
- Tropical Forest Utilization
- Social Forestry

3rd and 4th period (February – June): **Practical Period in a Tropical Country**

Fourth Year:

1st period (September-November):

- Spatial Information Technology (RUITF / GIS)
- Project Development and Communication (PDC)

2nd period (November-January):

- Forest Management Project (FMP)
- International Geomorphology, Soil Suitability and Land Degradation (IGSO)

3rd and 4th period (February – June): **Research project and thesis - colloquium**

(2) Program details:

<p>Name course unit (theme): Rural Resource Management Code: RRM Co-ordinator: Arjen Hetteema (arjen.hetteema@wur.nl) Year: 2 Period: 3</p>
<p>Contents summary: The theme RRM starts with a game called Africulture. This game makes participants familiar with the lives of farmers in Africa. The first four weeks consist of series of lectures on the following topics: Agroforestry, Rural Development; GIS; Soil and Water Conservation; and Plant, Soil and Water relations. These lectures may also include short assignments. The topics studied during these weeks will provide the students with the essential background knowledge to be able to carry out a land use planning. In addition to the lectures, two excursions are scheduled: students will visit ISRIC, the International Soil Reference and Information Centre, and the Greenhouse (Wageningen University). Furthermore, students will get practical experience with managing tree nurseries and erosion control methods at the Practical Training Centre (IPC). In the second part of the course students will apply their knowledge gained in the first weeks by working on a case study set in the tropics: the Kisii area in Kenya. Working in groups, students will (a) define a development plan for the Kisii area; (b) develop an optimal land use plan for the study area taking crop requirements and site characteristics into account; and (c) propose a farm management plan that considers farmers' objectives.</p>
<p>Output: Students will produce:</p> <ul style="list-style-type: none">• A report containing development goals and strategies to reach these goals in the context of the millennium development goals 1 and 7 (Poverty and Environment)• An optimal land-use plan for the Kisii area in Kenya• A farm management plan

Rural Resource Management continued:

Competencies addressed or (if still relevant) learning objectives:		
Main competence	Sub competences	Assessment criteria
Analyzing a problem:		
Student should be able to analyze a problem, gather necessary additional information, and be able to indicate the relations between cause and effect.	Define clearly the main problem.	<i>Main problem well defined; translate to objectives; objectives are relevant and all-inclusive</i>
	Define preconditions and set main requirements	<i>should be in agreement with the situation and with sustainability and nature conservation goals</i>
	Gather/collect relevant information; and able to select relevant information;	<i>The quotation of sources should be complete and in accordance with prescribed-required format Information gathered should be reliable and relevant to the problem definition</i>
	Formulate a description of the problem area	<i>The description of the situation should be sound, systematic and relevant to the objectives</i>
Developing point of view		
	Formulate vision for an integral problem	<i>should correspond with the objectives, pre-conditions and the requirements</i>
Solving problems		
	Formulate activities that would lead to solving the essence of a problem while taking preconditions into account, and that corresponds with the main objectives	
	Apply an assessment/ evaluation model	<i>Create an assessment model developed according instructions and using the correct data and criteria(sustainability being one of them)</i>
<p>Structure: The module addresses the following topics:</p> <ul style="list-style-type: none"> • Rural development issues to introduce students to the on and the development of farming systems in the tropics and how these systems are affected by rural development policies; • Plant, soil and water relations to familiarize students with tropical crops, and tropical soils: support students in making decisions regarding the management of soils, for example in relation to crop suitability, application of soil and water conservation (SWC) measures or salinity control; • Soil and water conservation technologies to familiarize students with methods to conserve and/or improve the land production; • Agroforestry technologies to introduce students to other possibilities to optimize land use; • Land evaluation so students get an understanding of the process of developing a land use plan for an area • GIS tools, so that students are capable to compare and analyse spatial environmental data, able to develop suitability maps, and can visualize an optimal land use plan. 		

Rural Resource Management continued:

Methods: Classroom lectures Assignments Case Studies
Assessment: The final assessment consists of an individual oral exam of 30 minutes where the student will be questioned about his or her integral knowledge, necessary to make optimal choices in the reports that have been elaborated by the groups during this theme. The assessment will be held during the last two weeks of this period (assessment period). Knowledge of the various topics addressed in the RRM will be tested in an entry-exam and a tropical plants test, two requirements that should be met before the assessment.
Credits: 15
Compulsory literature / reader (s): <ul style="list-style-type: none">• Reader Tropical Crops• Reader Investing in Development. A practical plan to achieve the millennium development goals• Reader Rural Development• Reader Agro-forestry• Reader Land-evaluation• Lecture notes on major soils of the world• Reader Soil and Water Conservation• Module Guide Rural Resource Management• Reader Case Study part 1• Reader Case study part 3

Name course unit (theme): Tropical Field Research Code: TFR Co-ordinator: Jaap de Vletter (jaap.devletter@wur.nl) Year: 2 Period: 4
Contents summary: The student will become familiar with more advanced tools of applied quantitative and qualitative research. After a general introduction into research methods, specific attention will be given to social research methods and ecological research methods. Making use of knowledge and skills acquired, students will develop their own research proposal, which may be either socially or ecologically orientated. This proposal is the main product and major focus of the final assessment. The course will be concluded by field work conducted in Spain, where the research proposal will be implemented in the field. The course is supported by field work in the Netherlands (exercise soil science and ecological research) and by the theme tropical forest ecology, which provides inputs for this course as well as for subjects which are addressed in a later stage of the study (3 rd year: tropical silviculture, tropical nature management; 4 th year Forest Management Project).
Output: <ul style="list-style-type: none">• The (socially or ecologically orientated) research proposal• Report of field work conducted in Spain

Tropical Field Research continued:

<p>Competencies addressed or (if still relevant) learning objectives:</p> <p>Core competency: conduct practical research, systematically set-up and carry out practical research into social, environmental and economic aspects of forest or nature management, whereby sustainability is the leading principle</p> <p>The student is able: [against the background of a relatively simple problem description] to formulate a clear and feasible research goal, to derive precise research questions from this goal, to select a research strategy, to decide what data or research material is needed to answer the questions, the methods he or she is going to use for processing and analysing this research material in order to find these answers, and - finally – to develop a research proposal that tells <i>what</i> activities are planned to do <i>when, how</i> and with what expected <i>results</i>.</p> <p>Secondly, also the competency to communicate in English will be addressed:</p> <ul style="list-style-type: none"> • The student is able to deliberate and consult effectively in English • The student is able to write a report in correct English
<p>Structure:</p> <p>Basic knowledge and skills acquired through the topics:</p> <ul style="list-style-type: none"> • Introduction Research Methods (IRM) • Social Research Methods (SRM) • Ecological Research Methods (ERM) • Last 2 topics supported by Statistics (ST) <p>Knowledge and skills applied in Proposal Writing and the development of a Research Proposal, Supported via Tropical Forest Ecology and Field Work</p>
<p>Methods:</p> <ul style="list-style-type: none"> • Classroom lectures • Assignments • Field work
<p>Assessment:</p> <ul style="list-style-type: none"> • Pre-exam in writing (tropical forest ecology) • Compulsory assignments for introduction research methods, social research methods, ecological research methods and-statistics, all completed assignments assessed as sufficient. • Pre-assessment of an essay (produced for tropical forest ecology) and the research proposal (English language) • Compulsory participation in fieldwork soil science – ecological research, reporting assessed as sufficient. • Final assessment: individual oral session focussing on the developed research proposal. Marks obtained will be entered officially once all previous steps have been completed with a grade of 5,5 or more.
<p>Credits: 13 + 2 extra (for successful participation in the Excursion to Spain)</p>
<p>Compulsory literature / reader (s) / other materials:</p> <ul style="list-style-type: none"> • Whitmore, T.C. (1998) An introduction to tropical rain forests, second edition. Oxford University Press, Oxford, U.K. (ISBN 0 19 850147) • White, L. & Edwards, A. eds. (2000) Conservation research in the African rain forest: a technical handbook. The Wildlife Conservation Society, New York, U.S.A. • Reader - number 225164 • Fowler et al (1998); practical statistics for field biology

Name course unit (theme): Costa Rican Reforestation Project**Code: CRR****Co-ordinator: Peter van der Meer TF****Year: 3****Period: 1****Contents summary:**

Planning a commercial plantation forestry project requires the ability of acquiring, analysing and integrating information from forest ecology and economy. In this course small student groups will have the task to develop a plantation development plan in the particular context of an existing plantation project in Costa Rica (CRR assignment). This plan will have to be developed according to a sequence of logical steps. Some relevant background information and specific site-related data is available, and more will be provided during the course in the form of lectures on specific subjects. However, student groups are also expected to search independently for relevant data.

Output:

The CRR assignment: a fully detailed and financially optimized plan schedule for the establishment and management of a commercial plantation.

Competencies addressed or (if still relevant) learning objectives:

The student needs to understand the professional position of a forestry engineer taking decisions based upon criteria of ecological and economic sustainability, and sound social governance. In CRR the focus will be on financial criteria and their use to substantiate decisions with regard to silvicultural issues such as planting density, species choice, rotation length, thinning etc

Competencies addressed:

Social functioning (advanced level)

- Be able to act according to the structure of an organization, as defined by its requirements and limitations;
- Be able to work actively within a group, define and divide tasks and to produce results according to standards that been agreed upon.
- To ask for and use feedback to improve personal and groups functioning;
- To be able to account for the group process, including its own role and that of his/her colleagues, and the final results as recorded in the report.

Entrepreneurship (advanced level)

- Be able to formulate clear and unambiguous requirements and objectives that are realistic and operational, i.e. on which decisions with regard to explicit measures can be based.
- Have an overview of relevant costs and potential benefits in a forestry enterprise and to apply cost-benefit analyses;
- Make a management plan for a plantation project following the indicated steps;
- Be able to substantiate ideas and decisions based on financial arguments;
- Be able to present the results in a report according to provided guidelines.

Costarican Reforestation Project continued:

<p>Design of plans (advanced level)</p> <ul style="list-style-type: none">• Be able to come to a multidisciplinary approach in which different requirements are integrated;• Be able to collect relevant information and reference data, to translate this information to a proper description of the area, to use this to define bottlenecks and opportunities, and to come to decisions;• Be able to formulate an original vision that tackles the problems, demands, requirements and limitations that have been identified before;• Be able to decide upon and to indicate which measures are necessary to fulfil the requirements and to indicate what the financial consequences are.
<p>Structure: CRR consists of the following elements (subjects):</p> <ul style="list-style-type: none">• Tropical Forest Ecology II• Plantation Forestry• Forestry Investment Analysis• Non-Timber Forest Products• Costa Rica Reforestation Project (the major assignment)
<p>Methods:</p> <ul style="list-style-type: none">• Classroom lectures• Assignments in group work
<p>Assessment:</p> <ul style="list-style-type: none">• Tropical Forest Ecology II – pre-exam in writing• Plantation Forestry – compulsory assignment• Forestry Investment Analysis – compulsory assignments• Non-Timber Forest Products - pre-exam in writing• Costa Rica Reforestation Project – assessment of the report <p>The final assessment will exist of an individual oral exam of maximum 60 minutes, in which questions will focus on the student’s integral knowledge and skills about forest plantation planning and management. The student must be able to explain and account for all aspects of the plantation development and management plan that he/she elaborated as part of his/her student group, with a focus on requirements, derived specific objectives, the choices made with regard to planning and management, and the evaluation.</p>
<p>Credits: 15</p>
<p>Compulsory literature / reader (s) / other materials:</p> <ul style="list-style-type: none">• Whitmore, T.C. (1998), An introduction to tropical rain forests,• Evans, J. and J.W. Turnbull (2004), Plantation Forestry in the Tropics. The role, silviculture and use of planted forests for industrial, social, environmental and agroforestry purposes

<p>Name course unit (theme): Capita Selecta Tropical Forestry and Nature Management</p> <p>Code: CS</p> <p>Co-ordinator: Jaap de Vletter (jaap.devletter@wur.nl)</p> <p>Year: 3</p> <p>Period: 2</p>
<p>Contents summary:</p> <p>This course provides the background knowledge and skills needed for the successful implementation of the 4th year's forest management project. Sustainable Forest Management (SFM) will be addressed with 3 different approaches: commercial timber production, management for nature functions and a social-participatory approach. These approaches are embedded in the themes Tropical Silviculture, Tropical Nature Management and Social Forestry. Tropical Forest Utilization is an additional theme providing the technical aspects of mainly timber production based forest management. Ultimately, it is Forest Policy, from the international as well national perspective that provides the framework for these choices and sets the rules. Hence, Forest Policy is the umbrella-theme in this course. Linked to all themes is the course element Currently Important Issues, under which students will debate on the contents of presentations held by guest-speakers, on a range of topics typical for the recent changes and challenges in the tropical forestry domain.</p>
<p>Output:</p> <p>The proceedings of the presentations and debates on the currently important issues, prepared groups of students. This bundled documentation forms the major basis for the assessment</p>
<p>Competencies addressed or (if still relevant) learning objectives:</p> <p>Core competency (1): conduct practical research – systematically collect, analyse and assess trustworthy information from various sources on social, environmental and economic aspects of forest or nature management, whereby sustainability is the leading principle</p> <p>The student is able [against the background of a multi-sectoral problem] to analyse a problem (analyse background data and information, place this in the correct context), to make an adequate assessment of the relevance of the information, taking into account current norms and values, come to a realistically motivated conclusion, understand the consequences of this conclusion and to make useful recommendations relevant for sustainable tropical forest management.</p> <p>Core competency (2): the student is able to design a (forest) management plan at advanced level – i.e. design a management plan for a cross-sectoral situation in line with existing international agreements and national laws or standards, taking into account the interests of relevant actors and stakeholders, whereby sustainability is the guiding principle.</p> <p>The student is able to analyse a rather complex problem (and its components), collect relevant background information (on forest, biodiversity, people involved and the policy framework), to formulate requirements, translate these into a vision for the future and implementable objectives, indicate bottlenecks and opportunities, propose solutions for the identified problems through realistic measures and management activities and to assess the impacts of these measures seen from the perspective of various stakeholders.</p>

Capita Selecta continued:

<p>Structure: The Capita Selecta consist of the following separate theme elements:</p> <ul style="list-style-type: none">• Forest Policy• Currently Important Issues• Tropical Silviculture• Tropical Forest Utilization• Tropical Nature Management• Social Forestry
<p>Methods:</p> <ul style="list-style-type: none">• Classroom lectures• Assignments• Presentations by guest speakers• Debates
<p>Assessment: Pre-assessments on the course elements Forest Policy, Tropical Silviculture, Social Forestry and Tropical Forest Utilization must be concluded with a minimum grade of 5,5.</p> <p>The final integral individual assessment consists of an oral examination of 45 minutes based on the collection of proceedings of the presentations and debates on the course element Currently Important Issues. If this assessment is successfully concluded with a minimum grade of 5,5 and all other requirements (pre-assessments and various assignments) are sufficiently fulfilled, a pass is obtained for this theme</p>
<p>Credits: 15</p>
<p>Compulsory literature / reader (s) / other materials:</p> <ul style="list-style-type: none">• Reader on Currently Important Issues• Lamprecht, H. (1989). Silviculture in the tropics. Tropical forest ecosystems and their tree species – possibilities and their long-term utilization. GTZ Eschborn.• Tropical forest development (August 1998), nr. 235018• Forest Inventory, nr 225153• Forestry and Rural Development, Lecture Notes by K.F. Wiersum• Reader on collaborative management

Name course unit (theme): Practical period (in a tropical / developing country)

Code:

Co-ordinator: Arjen Hettema (arjen.hettema@wur.nl)

Year: 3

Period: 3 and 4

Contents summary:

The 6-month practical period in a developing country forms the most important element in preparation for an eventual short or long term career in the tropics. It is impossible to have a proper impression of living and working in a tropical country without prior experience. It is also impossible to develop certain skills and a proper attitude without having worked in a real situation. That is why a practical period in the tropics is compulsory for students of Tropical Forestry. The choice of a practical placement is very important, and proper guidance in the host country is essential. Where possible, the student has to be responsible for obtaining his/her own placement and all the accompanying arrangements.

Output:

After returning to Larenstein the following output has to be submitted:

- Orientation report
- Technical report
- Assessment form
- Practical placement inventory form

Competencies addressed or (if still relevant) learning objectives:

The three most important objectives of the practical period are to enable the student:

- To decide whether to work abroad or not.
- To gain working experience in the tropics.
- To make an orientation as to what parts of tropical forestry are of most interest to him/her.

Competencies:

- Self-development.
- Social functioning in intercultural setting.
- Communicating in a different language.
- Doing research.
- Making plans.
- Managing natural resources in a participative way.

Emphasis is on the first 3 (general) competencies

Practical Placement continued:

Structure: The practical period is subdivided in the following phases: <ul style="list-style-type: none">• Preliminaries – selection of project and subject• Preparation and approval of proposal• Implementation of practical period in tropical or developing country• Return, “come-back workshop” and feedback on / assessment of reports
Methods: The practical period is planned and implemented within a continuous period of 6 months duration. While abroad, the student is coached by a local supervisor. Communication with the Larenstein coach is maintained via e-mail. After return, the student can evaluate his experiences against the practical period’s objectives in a come-back workshop.
Assessment: The various outputs (orientation report and technical report) have to be assessed as sufficient (+ or -)
Credits: 30
Compulsory literature / reader (s) / other materials: The Thesis Manual (in preparation)

Name course unit (theme): Project Development and Communication Code: PPP Co-ordinator: Arjen Hetteema (arjen.hetteema@wur.nl) Year: 4 Period: 1
Contents summary: In this theme students will study and analyse problems in the field of Natural Resources in the North-West Frontier Province of Pakistan. With the help of the Objective Oriented Project Planning (OOPP) method they will construct a problem tree, an objective tree, a logical framework and finally a project proposal. This proposal has to be according to the EEC Project Cycle Management Guidelines of 2004. Subsequently students will select from the project proposal communication activities and develop a communication plan. In this plan they have to describe: the objective, the message, the target group, the methods and the logistics. Final part is the development of a communication method: film, poster , radio program or play.
Output: <ul style="list-style-type: none">• Problem tree and Objective tree• Logical framework• Project proposal• Communication plan• Communication method/material

Project development and Communication continued:

<p>Competencies addressed or (if still relevant) learning objectives:</p> <ul style="list-style-type: none">• Students are able to analyse problems in the field of natural resources and use those to make a logic project proposal according to the Project Cycle Management Guidelines of the EEC• Students are able to write a communication plan with clear problem analysis, goals, target group analysis, message and method justification, and a realistic planning.• Students understand the process of and steps in interactive communication and are able to apply this in a communication plan
<p>Structure:</p> <ul style="list-style-type: none">• Project Cycle Management, Objective Oriented Project Planning, Logical Framework• Donor policies• Monitoring and Evaluation, Terms of Reference• Communicative intervention and policy planning• Understanding human behaviour/practice• Communication plan• Aspects of adult learning
<p>Methods:</p> <ul style="list-style-type: none">• lectures, group-work, role-play, presentations
<p>Assessment: The assessment consists of two parts:</p> <ol style="list-style-type: none">1. The different products<ul style="list-style-type: none">- Problem tree and Objective tree- Logical Framework- Project Proposal- Communication plan and communication method/material2. A written examination <p>The products count for 60% of the score and the exam for 40% Minimum mark for every product and exam is 5.5</p>
<p>Credits: 7</p>
<p>Compulsory literature / reader (s) / other materials:</p> <ul style="list-style-type: none">• Environmental Profile of North West Frontier Province, Pakistan• Reader Communication and Innovation• Reader Project Cycle Management 249044• Handouts will be made available

Name course unit (theme): Spatial Information Technology TF

Code: RUITF

Co-ordinator: Erika van Duijl (erika.vanduijl@wur.nl)

Year: 4

Period: 1

Contents summary:

In tropical forestry programmes and initiatives, the use of GIS in analysing, planning, managing and monitoring activities is becoming more and more common. Tropical foresters use GIS for instance in analysing status of natural resources, in detecting and visualizing changes in forest resources, and in developing forest management plans.

The theme *Spatial Information Technology* focuses on GIS theoretical concepts and learning to use the GIS Programme ArcGIS. In addition, it addresses a number of on topics and tools relevant when working in developing countries. For instance, how to deal with spatial data deriving from different sources, analyse data processed in different co-ordinate systems or projections, or how to assess the quality of the data. Options for creating new digital environmental data are addressed as well. This includes: geo-referencing air photographs, satellite images or paper maps; and the use of data collected with a GPS.

Topics addressed in this course include:

1. Understanding GIS concepts and use of GIS programme ArcGIS

(GIS data models, GIS data formats, co-ordinate systems and spatial projections)

2. Data Acquisition: creating and processing digital environmental data: (digitalisation, editing data, geo-referencing, databases, remote sensing including using satellite images, GPS, data quality)

3. Processing and analysing data (geo-processing tools, Spatial Analyst and 3D Analyst)

4. Presenting environmental data (map design, cartography, 3 D images & Web development)

5. GIS & Tropical Forestry

Output:

- A website or report presenting a forestation plan for the Mira Flores Hacienda in Ecuador.
- PowerPoint presentation

Competencies addressed or (if still relevant) learning objectives:

The main objective for the course is:

To gain a thorough understanding of the possibilities of using GIS programs as an instrument in the management of natural resources, as a tool for analysing environmental spatial data, and as an instrument to visualize past, current and future development of the status of tropical forests.

Competencies:

GIS as an instrument

- Have a good understanding of the potentials of GIS programs, in particular ArcGIS software capabilities and tools
- Be able to select and use the appropriate ArcGIS 9 software tools in collecting, creating, managing, and processing natural resource management data.
- Be able to create well designed informative maps – tailored to the audience and responding to the objectives.

Spatial Information Technology continued:

Research development and implementation

- Be able to formulate the problem clearly and translate to relevant and well defined objectives
- Be able to select, define and use appropriate methods
- Be able to collect relevant information and data; and to assess data and information critically
- Be able to analyse data using the appropriate methods and tools
- Be able to interpret the results; and review critically the results setting these against the methods and data collected.

Communication

- Be able to report on the results
- Be able to visualise the results through high quality maps

Structure:

After a session on the role of GIS in Tropical Forest Management, the first few weeks are focused on acquiring the basics in GIS: GIS concepts; GIS data models; coordinate systems and projections; geo-referencing and editing, GIS analysis, geo-processing tools, and designing maps. The lessons start with a lecture giving the theoretical background, and are continued with exercises from an on-line course in ARCGIS 9.

In addition, we will be working with GIS extensions (Spatial Analyst and 3D analyst) essential for working with elevation data or climate data. Special attention is also given to working with databases, cartography, and web design.

During the second half of the period, the students will be working in groups on a case study: developing a forestation plan for a hacienda located in Ecuador. The assignment focuses on indicating suitable planting areas for specific tree species, taking into account tree species characteristics and site characteristics. Students are asked to present their findings in a report or website, and in a power point presentation.

Methods:

- Lectures
- Self-study, which includes a virtual campus course “*Introduction Desktop ArcGIS 9*” and additional exercises
- Group work (groups of 2) : developing a forestation plan based on GIS analysis of environmental data

Assessment:

- Written Exam on GIS theory and using ArcGIS 9
- Report or website: Forestation plan

Compulsory tasks:

- The virtual campus course: “Introduction ArcGIS 9 Desktop” should be completed
- Additional GIS assignments should be completed, handed in and should be assessed as satisfactory
- Produced a power point presentation on the forestation plan developed (results group assignment/ case study)

Credits: 7

Compulsory literature / Readers:

- “ Learning ArcGIS Desktop (for ArcGIS 9.0 & 9.1)” the text of the ESRI virtual campus course (no 235027)
- “ ArcGIS Desktop 9 – Introductory Tutorial” (no 234097)
- “Spatial Information Technology – Tropical Forestry” (*forthcoming*)
- Additional papers & handouts are listed on blackboard

<p>Name course unit (theme): International Geomorphology, Soil Suitability and Land Degradation (IGSO) Code: IGSO Co-ordinator: Richard Kraaijvanger Year: 4 Period:2</p>
<p>Contents summary: Geomorphology: Landscape and landscape formation, soils and typical soil sequences (catenas). Suitability: Productivity assessment for crops and fuelwood. Land degradation: causes, solutions and alternative landuses.</p>
<p>Output: Case study on landscape, landuse, land degradation and suitability for a specific region.</p>
<p>Competencies addressed or (if still relevant) learning objectives: Communication (exchanging information in a foreign language) Rural planning (collecting regional information and translating to an adequate description) Practical regional research (collecting, analyzing and interpreting data; data to a wider context)</p>
<p>Structure: The module is composed of three topics (with equal weight): 1-geomorphology, 2-land degradation and 3-case study</p>
<p>Methods: Lectures: During the period (of 7 weeks) each week 4 lecture hours are provided: 2 on geomorphology and 2 on land degradation. Excursion: One half day excursion is held to the International Soil Museum in Wageningen. Case study: Students themselves work individually on a case study with respect to geomorphology, land suitability and land degradation in a specific region. This region is chosen by the students themselves and preferably the place of their practical placement.</p>
<p>Assessment: 1 exam on geomorphology (100 minutes, closed book) 1 exam on land degradation (100 minutes, open book) 1 assignment (Case study on landscape, land use, land degradation and suitability) Marks on both exams as well the case study should exceed 5.5 in order to obtain credits.</p>
<p>Credits: 5</p>
<p>Compulsory literature / reader (s) / other materials: At present lecture notes are provided on the Blackboard/Eduweb and provided during the lectures. In the future a suitable textbook might be prescribed</p>

Name course unit (theme): Forest Management Project

Code: FMP

Co-ordinator: Jaap de Vletter (jaap.devletter@wur.nl)

Year: 4

Period: 2

Contents summary:

Customary forest owners, united in a co-operative, have the ambition to manage their 6000 ha rainforest area (Drawa block) on the second largest island of the Republic of Fiji (South Pacific) in a sustainable manner. In order to realize this, they have to develop a comprehensive Forest Management Plan in accordance with all principles, criteria and indicators of sustainability. The forest owners seek advice and support to produce such a management plan. In reality, the German Agency for Technical Co-operation (GTZ) provides this support, jointly with the Fiji Forest Department. In this project, the students assume the role of technical advisers by writing and communicating the management plan and its accompanying GIS maps.

Output:

- Development of a management vision and plan outline
- Forest Inventory Data Base processed and analysed
- The comprehensive plan (per group) , tested against criteria and indicators for sustainable forest management
- The accompanying maps showing the planning in terms of location and sequence of proposed management measures in line with various forest functions

Competencies addressed or (if still relevant) learning objectives:

Core competency (1): conduct **practical research** – systematically collect, analyse and assess trustworthy information from various sources on social, environmental and economic aspects of forest or nature management, whereby sustainability is the leading principle

The student is able [against the background of a multi-sectoral problem] to analyse a problem (analyse background data and information, place this in the correct context), to make an adequate assessment of the relevance of the information, taking into account current norms and values, come to a realistically motivated conclusion, understand the consequences of this conclusion and to make useful recommendations relevant for sustainable tropical forest management.

Core competency (2): the student is able to **design a (forest) management** plan at advanced level – i.e. design a management plan for a cross-sectoral situation in line with existing international agreements and national laws or standards, taking into account the interests of relevant actors and stakeholders, whereby sustainability is the guiding principle.

The student is able to analyse a rather complex problem (and its components), collect relevant background information (on forest, biodiversity, people involved and the policy framework), to formulate requirements, translate these into a vision for the future and implementable objectives, indicate bottlenecks and opportunities, propose solutions for the identified problems through realistic measures and management activities and to assess the impacts of these measures seen from the perspective of various stakeholders.

Forest Management Project continued:

Structure:

After preparing a situation analysis which will cover the people (expectations and capacity) and the natural conditions of the site, the students will develop plan requirements and goals. The analysis of a data base containing information from the pre-harvest inventory conducted in 2000 is the next step.

The project then shifts to the more dynamic aspects, namely the development of management proposals in terms of methods, time-scale and quality. By simulating the application of the Fiji Landowner Tree Selection System, the sustainable allowable cut will be calculated. Areas for soil and biodiversity protection will be allocated. Proposals for the environmentally-friendly location of various classes of roads and trails will be made. The optimum sequence of operations will be determined. A detailed working plan for a few selected coupes will be prepared and a set-up for the organisation and methods of felling, extraction and transport will be designed. All steps are visualized by preparing GIS maps.

A cost – benefit analysis is part of the plan, including – on the costs side - a calculation of numbers of workers and other inputs required and – on the benefits side – the sales of timber. A comparative study of various options of timber processing will be made.

A monitoring system has to be designed. Tests will be conducted in order to verify whether the plan is in line with international and local policies (international conventions, relevant national laws etc) and whether it fulfils the essential sustainability standards and criteria (e.g. those of ITTO and FSC).

In this process, the actual plan will gradually take shape. In the first stages of the process, an outline of the plan's structure will be developed, after which this frame will progressively be provided with contents. The final version of the developed plan will be presented and defended (in groups).

Methods:

The project will – to a large degree – be implemented through a process of self-study and student-internal information sharing, with coaching and advice provided by the teachers.

Students will work in groups: depending on the number of students. Each group will prepare their own management plan. Each group nominates a leader, who is responsible for the within-group and between-group information sharing as well as the process management..

Essential background information and skills on a number of topics will be presented by the teachers in the form of conventional lectures.

One fixed afternoon of each week will be dedicated to a session in which the groups present their progress booked in the last week and the planning for the coming week to the teachers.

Assessment:

The assessment is based on 2 sub-assessments:

1. The contents and structure of final product, the forest management plan of each group, will be assessed by the teachers on the basis of a set of predetermined criteria. Since this product is the same for the members of one group, all students within the same group will receive the same marks on this sub-assessment.
2. Each student will have to do an individual oral exam covering the plan itself (including the GIS components) as well as the obligatory background literature.

Credits:10

Forest Management Project continued

Compulsory literature / reader (s) / other materials:

A list of compulsory literature is attached to the Theme Study Guide. Further readers to be used:

- Lamprecht, H. (1989). *Silviculture in the tropics. Tropical forest ecosystems and their tree species – possibilities and their long-term utilization.* GTZ Eschborn.
- Tropical forest development (August 1998), nr. 235018

Name course unit (theme): Research Project and Thesis

Code:

Co-ordinator: Jaap de Vletter (jaap.devletter@wur.nl)

Year: 4

Period: 3 and 4

Contents summary:

The thesis research and graduation are the final elements of the major Tropical Forestry and is one of the requirements to obtain the Bachelor degree. By planning and implementing the thesis research successfully, the student demonstrates that he / she is able to function at HBO-level in the professional domain for which he / she has been educated. The student shows that he / she is able to analyse a complex problem, to formulate relevant research questions, to select and apply appropriate methods to conduct research, to collect, order, analyse and interpret data, to draw conclusions and to formulate recommendations relevant to the problem(s) investigated.

The thesis research is planned and conducted within a continuous period of 6 months duration and is concluded with a written thesis in English that is presented in a colloquium. In the colloquium the student presents and defends his / her report, its contents, the activities carried out and the conclusions / recommendations arrived at.

Output:

The Thesis to be defended in the colloquium

Competencies addressed or (if still relevant) learning objectives:

The thesis research can only be concluded successfully if the student proves to have obtained all 7 Larenstein core competencies:

- Self development
- Social functioning, also in a different cultural setting
- Communication, also in a foreign language
- Entrepreneurship
- Conduct practical research
- Design forest – nature management plans
- Manage forest – nature

Emphasis is on the general competencies (self development, social development, communication) and on the technical competencies conduct research and design plans.

Thesis Research continued:

<p>Structure: The thesis research project is subdivided in the following phases:</p> <ul style="list-style-type: none">• Preliminaries – selection of project and subject• Preparation and approval of proposal• Implementation and thesis writing• Approval of (draft) thesis• Colloquium – assessment
<p>Methods: The thesis research is planned and conducted within a continuous period of 6 months duration. The student plans and implements his research to a large degree independently. The project is concluded with a written thesis in English that is presented in a colloquium. In the colloquium the student presents and defends his / her report, its contents, the activities carried out and the conclusions / recommendations arrived at</p>
<p>Assessment:</p> <ul style="list-style-type: none">• The thesis report• The colloquium• The process• According to specified criteria (see Thesis Manual)
<p>Credits: 30</p>
<p>Compulsory literature / reader (s) / other materials: Thesis Manual Tropical Forestry (in preparation)</p>