

Course title: Vegetation Science & Site Classification				
Course code: NRE 122	No. of credits: 4	L-T-P: 34-12-20	Learning hours: 56	
Pre-requisite course code and title (if any): NRE 121 Ecology, NRE 123 Biodiversity Assessment and Conservation				
Department: Department of Natural Resources				
Course coordinator: Dr Sudipta Chatterjee		Course instructor:		
Contact details:				
Course type: Elective		Course offered in: Semester 3		
Course Description The students will understand the basic concepts of vegetation science, they will learn to apply sampling methods and appropriate statistical tools to analyse vegetation data and will be able to use this information to classify and interpret plant communities and site conditions. This knowledge will not only deepen the ecological understanding of plant communities but will also help to assess and interpret the biodiversity of plant community formation as a function of site conditions and human impact. The student will be equipped with a scientific tool that they will help them in understanding and designing management approaches to manage plant biodiversity.				
Course objectives 1. To understand the significance and concepts of vegetation science 2. To build the capacity in statistical procedure and software relevant in vegetation science 3. To build the capacity to carry out research in vegetation science				
Course content				
SNo	Topic	L	T	P
1.	Introduction Vegetation: Definition and concepts, patterns, drivers, magnitude, biodiversity and human well-being-concepts and methodologies	6		
2.	Aims and methods in vegetation science: Main concepts Sampling methods; stratification of sites; phenology, arrangement of plots, transects, plot size, plot shape (biomass study, litter fall and decomposition, phonological changes) Plant species as indicators for environmental conditions; Forest use practises and vegetation; site classification - nutrient supply, nutrient cycling, humus types; drought and water supply as a function of edaphic (water storage capacity) and climatic factors	6 8		
3.	Preparation of field visit Introduction to the study site, development of study aims and methodology	2	6	
4.	Supervised field assessment Assessment of vegetation in different sites and data management	4		3 days
5.	Analysing vegetation data Introduction in vegetation statistics, data exploration, introduction of the software, parametric and non-parametric statistics for univariate and bivariate data, data transformation, classic European vegetation analysis BB, distance indices, cluster analysis, indirect and direct ordination	8	6	

6.	Supervised analysis of the field data Analysis and presentation			
	Total	34	12	20
Evaluation criteria				
<ul style="list-style-type: none"> ▪ Two minor tests: 20% each ▪ Final oral test: 20% ▪ Presentation: 40% 				
Learning outcomes				
<ol style="list-style-type: none"> 1. Students understand the concepts of vegetation science 2. Students are able to apply sampling methods and appropriate statistical tools to analyse vegetation data 3. Students have the skills to classify and interpret plant communities and site conditions 4. Students have the ability to work in a team under field conditions 				
Pedagogical approach				
Materials				
Required text				
<ol style="list-style-type: none"> 1. Kent M. and Coker P. (1992) <i>Vegetation Description and Analysis: A Practical Approach</i>, Boca Raton, Fla.: CRC. 2. McCune B. and Grace J. (2002) <i>Analysis of Ecological Communities</i>, MjM Software Design, Oregon, U.S.A. 				
Suggested readings				
<ol style="list-style-type: none"> 1. Singh J.S. and Singh S.P. (1992) <i>Forests of Himalaya-Structure, Functioning and Impact of Man</i>, Gyanodaya Prakashan, Nainital. 2. Tuhkanen S. (1980) <i>Climatic Parameters and Indices in Plant Geography</i>, Almqvist & Wiksell International. 				
Other Important Readings				
<ol style="list-style-type: none"> 1. Champion H.G. and Seth S.K. (1968) <i>A Revised Survey of the Forest Types of India</i>, Government of India Press, Delhi. 2. Loreau M., Naeem S. and Inchausti P. (Ed.) (2002) <i>Biodiversity and Ecosystem Functioning, Synthesis and Perspectives</i>, Oxford University Press, New York. 				
Other Recommended Readings				
<ol style="list-style-type: none"> 1. MEA (Millennium Ecosystem Assessment) (2005a) <i>Living Beyond Our Means-Natural Assets and Human Well-being</i>, statement from the board, Washington, DC. 2. MEA (2005b) <i>Ecosystems and Human Well-being, Synthesis</i>, Island Press, Washington, DC. 				
Case studies				
Websites				
Journals				
<ol style="list-style-type: none"> 1. Journal Applied Vegetation Science 2. Journal of Vegetation Science 3. Physiologia Plantarum 				

Additional information (if any)
Student responsibilities Attendance, feedback, discipline, guest faculty etc