COURSE SYLLABUS
«Forest Inventory and Mapping»

Degree of higher education – Master
Specialty 205 – Forestry
Educational program "Forestry"
Tear of study 1, semester 2
Form of education Full-time
Number of ЄКТС credits 5,0
Tuition language English

Course lecturer	**Viktor Myroniuk**
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COURSE DESCRIPTION

The course is focused on the theoretical foundations of the sample-based forest inventory which in combination with remote sensing data provides a spatially explicit assessment of forest attributes. The course is designed to provide students with training in forest inventory using fixed- and variable-area plots and introduce the approaches for optimization of sampling design as well as statistical computations in national forest inventory. The course also introduces the necessary knowledge of mapping forest attributes using machine learning and imputation techniques.

COURSE STRUCTURE

Lecture Topic	Hours (lectures/ laboratory/ individual work)	Learning outcomes	Assignments	Grading
3rd Semester				
Module 1. Methodology of sample-based forest inventory				
Theme 1. National forest inventory: historical background and current challenges	2/2/10	***To know*** the historical background of forest inventories and sampling strategies that are utilized in various countries of the world, configurations of sample units of forest inventories, and associated estimation procedure of key forest attributes. ***To be able*** to design sampling frame in GIS; to perform an evaluation of areal means of forest attributes.	*Submission of practical assignments.* *Submission of assignments for individual work.*	*Completed assignments for laboratory and individual work make up a grade of 55%, and the module test makes up 45%.*
Theme 2. Sampling design in forest inventories	2/2/10			
Theme 3. Overview of sampling units	2/4/10			
Theme 4. Measuring live and dead components on forest plots	2/2/10			
Theme 5. Estimation of areal means and variances of forest attributes	2/4/10			

Module 2. From plots data to forest maps				
Theme 6. General principles of remote sensing	2/4/10	***To know*** he physical principles of passive and active remote sensing; satellite-based sensors and their use in forest inventory; algorithms for image classification including the imputation of forest attributes ***To be able*** to combine forest attribute measurements on sample plots and satellite imagery to map species distribution and growing volume of forest stands; assess the accuracy of discrete and continuous maps.	*Submission of practical assignments.* *Submission of assignments for individual work.*	*Completed assignments for laboratory and individual work make up a grade of 55%, and the module test makes up 45%.*
Theme 7. Reference data for image classification	2/2/10			
Theme 8. Mapping discrete and continuous forest attributes	2/4/10			
Theme 9. Map accuracy assessment	2/4/10			
Theme 10. Using remote sensing to monitor forest changes	2/2/10			
Total in 3rd semester	**20/30/100**	–		**70** 0,7*(100+100)/2
Test				**30**
Course total				**100**

GRADING POLICY

Deadline and Remedial Policy:	Deadlines are set for all the assignments. Practical works submitted in violation of deadlines without a good reason will be penalized by lower grade. Re-takes of module tests in presence of good reasons (e.g.: sick leave) take place on lecturer's permission.
Academic Integrity Policy:	Cheating during tests and examinations is strictly forbidden (including using mobile phones and tablets). All written works are checked for plagiarism and are allowed to be defended when the total share of properly referenced text is up to 20%.
Attendance Policy:	Attendance is mandatory. For objective reasons (e.g.: sick leave, international internship) teaching can take place individually (online, under a warrant from the Institute's Director).

KNOWLEDGE GRADING SCALE

Rating of the applicant of higher education, points	**Evaluation results on national exams, tests**	
	exam	**test**
90-100	excellent	passed
74-89	good	
60-73	satisfactory	
0-59	unsatisfactory	not passed