BREF2103 Dendrometry and inventory of forest resources

[30h+22.5h exercises] 4 credits

Teacher(s): Quentin Ponette
Language: French
Level: Second cycle

Aims

By the end of this course, the student will be able to handle instruments, tools and strategies that are to be implemented for the quantification of tree and stand characteristics, both from static and dynamic (increments) points of view. This quantification is needed for increased understanding of ecosystem functioning, as well as for present and future forest ressources assessment.

Main themes

1. Definitions, significance, measurement or estimation of current tree (e.g. diameter, circumference, basal area, heights, volumes, forms, crown parameters) and stand (e.g. stem distributions, diameters, heights, volumes, stand densities, productivity) characteristics.
2. Tree and stand increments: concepts, estimation, tools and models
3. Forest inventory - complete tree tally and sampling: (i) fundamental concepts of sampling theory, (ii) sampling units, (iii) inventory planning and analysis, (iv) sampling designs (e.g. simple random, stratified random, systematic, single- and multi-stage, multiphase, repeated samplings).

Content and teaching methods

This course presents the measurement and sampling methods as well as the essential tools, used for the quantification of forest trees and stands (current characteristics and increments). The theoretical principles are illustrated and implemented during practical exercises carried out in the field or in classrooms.

Other information (prerequisite, evaluation (assessment methods), course materials recommended readings, ...)

Prerequisite Silviculture, Forest ecology, Statistics, Computing
Related courses Silviculture, Forest management and economics, Forest engineering
Assessment methods Oral examination for theoretical developments, reports for practical exercises
Course materials Lecture notes
Recommended readings
Avery, T.E., Burkhart, H.E., 1994. Forest measurements. 4th ed.McGraw-Hill, USA, 408 p.
Husch, B., Beers, T.W., Kershaw, J.A. (jr.), 2003. Forest mensuration. 4th ed. John Wiley & Sons, New York, USA, 443 p.
Loetsch, F., Haller, K.E., 1973. Forest inventory, volume 1: statistics of forest inventory and information from aerial photographs. 2nd ed. BLV, München, Germany, 436 p.
Rondeux, J., 1999. La mesure des arbres et des peuplements forestiers. Les Presses Agronomiques de Gembloux, Gembloux, Belgique, 521 p.
Shiver, B.D., Borders, B.E., 1996. Sampling techniques for forest resource inventory. John Wiley & Sons, New York, USA, 356 p.
Training | supervision Professor, assistant, technician
Other Partim A and B are given during the first and second semesters of Master 1, respectivelyAn integrated exercise combining forest mensuration, forest management, forest engineering and silviculture is given in Master 2.

Programmes in which this activity is taught

BIR2 Bio-ingénieur

Other credits in programs

BIR22/6E	Deuxième année du programme conduisant au grade de bio-ingénieur : Sciences et technologie de l'environnement (Nature, eau & forets)	(4 credits)	Mandatory