



# Faculté d'ingénierie biologique, agronomique et environnementale

## AGRO

BREF2107 **Silviculture**

[45h+75h exercices] 9 credits

**Teacher(s):** Quentin Ponette  
**Language:** french  
**Level:** 2nd cycle course

### Aims

This course is intended to give the technical knowledge, abilities and tools needed for the optimal management of forest stands of contrasting characteristics (e.g. reproduction type, species composition, age structure) - given an array of objectives (e.g. wood production, soil and water protection, nature conservation, recreation, hunting) and contexts (e.g. environment, technical, social).

### Main themes

1. Botany, ecology and ecophysiology of tree species
2. Ecosystem functioning with special emphasis on nutrient cycling
3. Silvicultural operations in even-aged high forests: site preparation, forest plants and nursery management, intermediate and release treatments, crown formation and pruning, thinning, regeneration methods - foundations and effects at the tree, stand and ecosystem levels
4. Uneven-aged and mixed-species stands: stand assessment and diagnosis, stand dynamics in selection system, silvicultural operations, conversion
5. Zonal silvicultures, with special emphasis on tropical forestry

### Content and teaching methods

This course is made up of three parts. A - Forest ecology (15+15, 2 ects): dendrology and forest geography, nutrient cycling and fertility management, silviculture and site conditions. B - Applied silviculture (30+30, 4 ects): silviculture of even-aged high forests, silviculture of irregular and/or mixed-species stands, species-oriented silvicultures. C - Lectures and forest field trip (15+30, 3 ects): zonal silvicultures, forest field trip. Teaching combines excursions, practical field work and short-term projects.

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

Prerequisite Introductory course in silviculture, ecology, plant physiology, plant classification

Assessment methods Oral and written examination, reports for practical works

Course materials Lecture notes

Recommended readings

Barnes, B.V., Zak, D.R., Denton, S.R., Spurr, S.H., 1998. Forest ecology. 4th ed. John Wiley & Sons, New York, USA, 774 p.

Kimmins, J.-P., 1997. Forest ecology. A foundation for sustainable management. 2nd ed. Prentice Hall, Upper Saddle River, USA, 596 p.

Nyland, R.D., 2002. Silviculture : concepts and applications. 2nd ed. McGraw-Hill, USA, 682 p.

Schütz, J.-P., 1990. Sylviculture 1. Principes d'éducation des forêts. Presses polytechniques et universitaires romandes, Lausanne, Suisse, 243 p.

Schütz, J.-P., 1997. Sylviculture 2. La gestion des forêts irrégulières et mélangées. Presses polytechniques et universitaires romandes, Lausanne, Suisse, 178 p.

Smith, D.M., Larson, B.C., Kelty, M.J., Ashton, P.M.S. 1996. The practice of silviculture: applied forest ecology. 9th ed. John Wiley & Sons, New York, USA

Training | supervision Professor, assistant, technician

Other This course is organized as follows - A: Master 1, 1st semester; B: Master 1, 1st and 2nd semesters; C: Master 2.