Agro-écosystèmes et systèmes agraires

Lecturers
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Course mnemonic
BING-F202

ECTS credits
5 credits

Language(s) of instruction
French

Course period
Second term

Course content

1. Initiation to personal work (to be carried out in pairs): Update on agronomical knowledge to visit, discuss, analyse and diagnose a Belgian mixed farm (guide provided) (6h)

2. Introduction: general ecological concepts and course theoretical framework: energetics of food production, components of an agricultural landscape, agriculture and ecological succession, human nutrition (what do we actually need to produce?) (6h)

3. From the ecosystem to the agro-ecosystem: changes in energy fluxes and mineral cycles (6h)

4. Growth and yield in plant production (6h)

5. Principles and techniques of plant multiiplication: vegetative and generative means (6h), formal and informal seed systems, plant reproductive systems (6h)

6. World farming systems: an evolutionary approach introduced with the theory of Ester Boserup (6h)

Objectives (and/or specific learning outcomes)

Teach the agroecological drivers of the main farming systems of the world, from the technical and ecological to the historical, geographical and socio-economic.

Pre-requisits and co-requisits

Pre-requisites courses

BING-F1001 | Sciences de la terre et du bioingénieur, environnement et société | 5 crédits

Teaching method and learning activities

Theory (3 credits): ex cathedra, fed by personal field work

Personal Field Work (2 credits): leading to a report detailing the structure and fonctioning of a typical mixed farm

Contribution to the teaching profile

Bio-engineering comprises an understanding of the basics of farming and agricultural sciences. This course gives a theoretical and practical introduction from an agroecological viewpoint.

References, bibliography and recommended reading

Brady N. C. & Weil. R. R., 1999. The nature and properties of soils. Prentice Hall, New Jersey.

Grigg, D., 1974. The agricultural systems of the world. An evolutionary approach. Cambridge University Press, Cambridge.

Boserup Ester, 1965. The conditions of agrarian change. The economics of agrarian change under population pressure

Lebeau, R., 1996. Les structures agraires du monde. Masson/ Armand Colin, Paris.

Pannekoek & Straaten, 1984. Algemene geologie, Wolters Noordhoff, Groningen.

Pimentel D. & Pimentel M., 1979. Food, energy and society. Edward Arnold, London.

Mazoyer M. & Roudart L., 2002. Histoire des agricultures du monde. Editions du Seuil, Paris.

Soltner D., 1995. Les bases de la production végétale. Tome 1: Le sol, Tome 2: La plante

Evaluation method(s)

Other

Evaluation method(s) (additional information)

2/5: farm report

3/5: written exam on theory encompassing both the ex-cathedra courses and the knowledge acquired through the personal field work

Determination of the mark (including the weighting of partial marks)

2/5: farm report

3/5: written exam on theory encompassing both the ex-cathedra courses and the knowledge acquired through the personal field work

Programmes

Programmes proposing this course at the faculty of Sciences

BA-IRBI | Bachelor in Bioengineering | unit 2 and MA-AGEC | Master in Agroecology | finalité Professional/unit 1

Programmes proposing this course at the Brussels School of Engineering

BA-IRBI | Bachelor in Bioengineering | unit 2