

Master in Life Sciences

A cooperation between
BFH, FHNW, HES-SO, ZFH

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| Module title | Ecological Infrastructure in Landscapes |
| Code | E4 |
| Degree Programme | Master of Science in Life Sciences |
| Group | Environment |
| Workload | 3 ECTS (90 student working hours: 42 lessons contact = 32 h; 58 h self-study) |
| Module Coordinator | <p>Name: Dr. Claude Fischer Phone: +41 (0)22 546 68 75 Email: claud.fischer@hesge.ch Address: hepia, filière Gestion de la Nature, 150 route de Presinge, 1254 Jussy</p> |
| Lecturers | <ul style="list-style-type: none"> • Dr. Claude Fischer, hepia, HES-SO • Dr. Beat Oertli, hepia, HES-SO • Dr. François Lefort, hepia, HES-SO • Dr. Thomas Gross, FHNW • Member of the cantonal administration |
| Entry requirements | <p>Knowledge of following concepts: Biodiversity, Spatial behavior (home range, dispersion, migration), Spatio-temporal space use of populations (seasonality, activity), Theory of island biogeography, Basics in population genetics, Basic GIS</p> <p>Recommended documents (to acquire the entry requirement): Campbell Biology (11th edition), chapters: 23, 53, 55.</p> <p>The module will begin with a short test to assess the level of knowledge of the students.</p> |
| Learning outcomes and competences | <p>After completing the module, students will be able to:</p> <ul style="list-style-type: none"> • Assess the ecological infrastructure in a landscape • Identify corridors and gaps in ecological networks (with GIS tools) • Plan and model land-use trends (e.g. development in urban, rural or mountain areas) • Make propositions for the restoration of the landscape (functional infrastructure) |
| Module contents | <ul style="list-style-type: none"> • Landscape and Movement Ecology • The national ecological network (from national to local implementation) • GIS tools for assessing and representing the ecological infrastructure and the dynamics of land-use • Genetic tools for measuring ecological connectivity (spatial genetic structure of populations) • Decision-making support for spatial land-use planning and interconnecting areas of importance |
| Teaching / learning methods | <p>The module is organized around a <u>project</u>: The students will develop a real case-study (in interaction with professionals). Theoretical content will also be provided, throughout the development of the project.</p> |
| Assessment of learning outcome | <p>1. An individual written report (with a joined GIS project) to be handed in 3 weeks after the end of the module (100%)</p> |
| Format | Winter School |

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| Timing of the module | Autumn semester, CW 6 | | | | | | | |
| | Day of the block week | <1 | 1 | 2 | 3 | 4 | 5 | >5 |
| | Contact teaching (lessons) | | 10 | 8 | 8 | 8 | 8 | |
| | Self-study (hours) | 8 | | | | | | 42 |
| Venue | Geneva (practical parts in the surroundings of Geneva) | | | | | | | |
| Bibliography | <p><u>Landscape ecology:</u> Forman RTT, Godron M (1994) Landscape Ecology. John Wiley & Sons Ryszkowski L (2001) Landscape Ecology in Agroecosystems Management. Advances in Agroecology. CRC Press, Washington, D.C.</p> <p><u>National Ecological Network:</u> http://www.sib.admin.ch/</p> <p><u>Landscape genetics:</u> Balkenhol N, Cushman S, Storfer A, Waits L (2015) Landscape Genetics: Concepts, Methods, Applications. Wiley-Blackwell, Oxford (http://www.landscapegenetics.info/)</p> | | | | | | | |
| Language | English | | | | | | | |
| Links to other modules | <p>There will be close coordination with the CS-module E5 "Biodiversity". Both modules are designed to be complementary.</p> <p>Links with E3 "Sustainable Natural Resource Management", GIS modules at HES-SO and BFH.</p> | | | | | | | |
| Comments | | | | | | | | |
| Last Update | 23.02.2018 | | | | | | | |