# EVOLTREE TRAINING ACTIVITIES

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**One of EVOLTREE's four main Integration Activities (IAs) is dedicated to the training of students and young scientists.**
**For an integrative research consortium such as the Network of Excellence EVOLTREE, it is a prime responsibility to disseminate scientific knowledge and advances to the research community (e.g., through peer-reviewed articles) as well as to the public, but even more so directly to its constituting members; in particular to its students as the forthcoming generation of researchers.**
**One way in which EVOLTREE carries out such knowledge transfer is via the training opportunities created by its partners as part of their in-kind contribution to the network.**

## Transfer of knowledge within Evoltree – and beyond

During the initial, EC-supported phase (2006-2010), every partner was invited to suggest training courses that would fit the scope of Evoltree research in a broad sense. The organisation of a course was financially supported by the network's own funds so that expenses, e.g., for invited teachers, could be covered.

In EVOLTREE's second phase as a European Research Group (2011 onwards), it was agreed that partners could offer training courses as in-kind contribution, an alternative to direct monetary support of the network activities. As a consequence of this formal change, the types of training opportunities broadened so that excursions, workshops, existing courses from within the curriculum of a university, etc. could be integrated into the programme.

As a great benefit of the resources available within the network during both phases, all participants from the EVOLTREE partner institutions can be reimbursed for their expenses up to a pre-defined limit., these training courses are not only open to students from registered EVOLTREE partners, but also to interested students from outside the network (at their own costs). This way, it is possible to foster cross-disciplinary education and to establish or strengthen contacts between complementary fields of research.

## Wide-ranging expertise for a variety of students

A multitude of disciplines are represented within the EVOLTREE partnership. Hence, training could greatly benefit from this broad range of expertise of leading scientists in their field within the consortium. To complement this competence in the training programme, EVOLTREE partners invited lecturers from a variety of

Photo: Julien Dumercq, LabEx COTE

## AN INSIDER'S VIEW

Participating in an EVOLTREE training course has benefited many students over the past ten years. Students have appreciated the opportunities given by the network, be it the many topics explored within the various courses, or the depth and competence of the teaching in a particular course. This positive attitude is not only reflected by the often high numbers of participants, but also by respective feedback.

In their course feedback, participants have stated: "This course was beneficial for me and fulfilled my expectations. It was a good experience to learn interdisciplinary in approaching ecological problems. The necessity to combine natural, social and civil sciences to better understand the biodiversity loss and conservation was largely developed during the course." and "(...), a perfect place to forget about daily and mundane preoccupations and dedicate one's mind to the acquisition of new scientific skills". Such responses are great motivation for continuing our commitment to teaching our students and to dedicate time and resources towards these activities.

Photo: Patricia Gonzalez Diaz

disciplines and institutions for these training courses, which also contributed to the exchange of knowledge among the researchers involved.

An appealing outcome of the training programme was to see that not only young students of forest ecology, e.g., at PhD or post-graduate levels, took advantage of the opportunities to learn about new techniques, types of analyses, or concepts, but that established scientists also participated in the training events and could thus learn from – and at the same time actively contribute with their own background to – the training offered by their colleagues.

Over the years, the EVOLTREE training programme has accumulated an immense breadth of topics covered in the various courses (Table. 1). Students have been able to, for examples, learn about fundamental analytical tools in population genetics, take first steps towards effectively using the bioinformatic toolbox, debate about conceptual issues of the coalescent theory, obtain insights into and perform meta-analyses, attempt to detect genomic signatures of adaptation, or discuss ecological consequences of global change on forest ecosystems.

## Outlook

The EVOLTREE community will continue to offer training opportunities that cover the entire breadth of EVOLTREE research and competence – and beyond. Benefiting from established courses or taking the opportunity for developing new teaching components, both researchers and their students of EVOLTREE partner organisations will be able to take part in the transfer of expertise and knowledge to the forthcoming generation of scientists in the fields of genetics, genomics, and ecology of forest ecosystems. These opportunities will also foster the integration of the European research laboratories taking part. Such personal contacts are fundamental and constitute a pre-requisite for continued integrative and interdisciplinary research.

## TABLE 1

**Overview of training opportunities during the Evoltree phase II as a European Research Group (2011–2015)**

| Year | Title/subject | Organising partner[1] |
|---|---|---|
| 2011 | Next-generation sequencing | U Udine |
| | Adaptation of forest management to climatic change | U West Hungary |
| | Functions of microbial communities in soils | Hemholtz; *TU Munich* |
| | Population genomics | U Oulu |
| | Evolutionary quantitative genetics in forest ecosystems | INRA Pierroton |
| 2012 | Genetic data analysis | CZ U Life Sciences; *N Carolina State U* |
| | Genome-wide association studies using mixed models | U Uppsala |
| | An interdisciplinary perspective on biodiversity and ecosystem services | *ALTER-Net* |
| | Ecophysiology techniques workshop | U Southampton |
| | Population genetic and genomic approaches | U Göttingen |
| 2013 | Estimating mating system and gene flow in plants | U Bygdosz |
| | NGS analysis for beginners | INIA; *U Valladolid* |
| | Global Ecology for Global Change | *LabEx COTE* (INRA Pierroton) |
| 2014 | Transfers and interactions between ecosystems | *LabEx COTE* (INRA Pierroton) |
| | NGS data analysis: from heaven to hell | U Udine |
| | Georeferenced genetic data and their evaluation | TU Zvolen |
| | Population structure and the architecture of quantitative traits | U Uppsala |
| 2015 | *Forest genetic monitoring* | *U Thessaloniki* |
| | Approximate Bayesian Computation | U Uppsala |
| | Ancestral graphs and SMC | U Uppsala |
| | Coalescent today | U Uppsala |
| | Ecology and society: biodiversity and global change | INRA Pierroton |
| | Global change and the evolutionary potential of forest trees | U Copenhagen |
| | NGS data for phylogenetics | U Marburg |

1 Partner names in brackets indicate organisational link, but not full responsibility for course organisation; institutes in italics indicate non-Evoltree organisers.

## FIGURE 1

**Training courses combine expert lectures, hands-on computer work, guided disucssions, poster sessions, and excursions — in a creative and stimulating environment**

Photos: RensingLab, C. Rosique