

**SCIENTIFIC PROGRAM OF
POST-GRADUATE EDUCATION IN
BIOLOGICAL SCIENCES (III^e CYCLE ROMAND)
2010**

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Dear students,

The post-graduate education committee organizes this year for you:

- a lecture cycle of 5 days at Villars-sur-Ollon
- a minisymposium on the latest in genome analyses
- practical courses in different research laboratories and of the affiliated universities
- theoretical courses which go under the names of lecture cycle, conference, minisymposium or seminar
- single lectures to be announced later during the year on the web: <http://www.3eme-cycle.ch/biologie>

All activities are free of charge. You will find the necessary details in this brochure.

Participate and Enjoy!

The scientific committee of the IIIème Cycle romand en sciences biologiques

The postgraduate education program in biological sciences

The "IIIème Cycle romand en sciences biologiques" organises seminars and practical courses for the PhD students attached to the universities of Berne, Fribourg, Geneva, Lausanne and Neuchâtel, the ISREC or the EPFL. All activities are planned by the scientific committee of the "IIIème Cycle romand en sciences biologiques" which comprises three subcommittees: animal biology, biochemistry & biomedicine and plant biology. Practical courses are usually organised in one of the participating universities, whereas theoretical courses (lecture cycles, minisymposia, and seminars) of variable length may also be held in other places. Most activities are organised by the subcommittees and are of particular interest for students doing their thesis in a related field. However, at least one seminar per year is organised as a common activity by the central committee and a theme of general interest is chosen that covers an emerging topic of importance for the whole scientific community. One aim of these seminars is to bring students into close contact with internationally renowned speakers, many of which come from overseas, and to give students a chance to learn and interact. A further aim is to bring to the forefront the social, economical and ethical considerations, which may be influenced by or may direct fundamental research. The courses of the IIIème Cycle romand are open to all students affiliated to any of the above-mentioned universities/institutions.

The organizers of this post-graduate education program in biological sciences hope that this brochure will help to get you interested in the activities of the IIIème Cycle. In the name of the organizers I invite you to actively participate.

Nicolas Perrin
President
IIIeme Cycle romand en sciences biologiques

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Useful addresses:

President of the IIIème Cycle romand en sciences biologiques:

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Tel. 021/692 4184, Fax: 021/692 4165
e-mail: Nicolas.Perrin@unil.ch

President of the sub-committee for biochemistry & biomedicine:

Dr. Laurent Falquet
Swiss Institute of Bioinformatics
Génopode,
UNIL
1015 LAUSANNE

Tel. 021/692 4078, Fax: 021/692 4065
e-mail: Laurent.Falquet@isb-sib.ch

President of the sub-committee for animal biology:

Dr. Christoph Haag
University of Fribourg
Department of Biology
Unit of Ecology & Evolution
Chemin du Musée 10
1700 Fribourg

Tel. 026/300 88 71, Fax 026/300 96 98
e-mail: christoph.haag@unifr.ch

President of the sub-committee for plant biology:

Dr. Xavier Perret
Université de Genève, Sciences III
Dépt. de Botanique et Biologie Végétale,
Unité de Microbiologie
Quai Ernest-Ansermet 30
1211 GENEVE 4

Tel. 022/379 31 17, Fax: 022/379 31 99
e-mail: xavier.perret@unige.ch

Secretariat of the IIIème Cycle romand en sciences biologiques:

Ms. Nilgün Sailer
Dépt. de biologie, Unité Eco & Evo
Université de Fribourg
Ch. du Musée 10
1700 FRIBOURG

Tel. 026/300 88 36, Fax: 026/300 96 98
e-mail: Nilgun.sailer@unifr.ch

GENERAL INFORMATION

Registration

As a general rule, registrations for all activities organized either in common or by the different subcommittees (minisymposium, seminars, lecture courses and practical courses) should be made directly with the organizers (see following pages of the brochure) or through the web page <http://www.3eme-cycle.ch/biologie> of the IIIème Cycle. Registration forms for the lecture cycle at Villars-sur-Ollon can also be sent to the secretary of the IIIème Cycle Romand, Ms. Nilgün Sailer, Dép. de biologie, Unité de Eco&Evo Université de Fribourg, Ch du Musée 10, 1700 Fribourg.

Costs

- 1) In principle, the participation of postgraduate academic students from Switzerland and other countries in these courses is free.
- 2) For students from the participating Swiss universities and institutions*, accommodation is organised and paid by the IIIème Cycle. Similarly, breakfast and dinner at the hotel is paid but lunches may be charged to the participants, if funds are getting tight. Travel expenses are reimbursed on the basis of the half-price ticket for public transportation.
- 3) For students from other universities and institutions, accommodation and meals can be organized, but they will have to find their own funding to pay for it.
- 4) Financial support and as described in 2) is given in priority to PhD students so that postdoctoral fallows may only partially or not be supported.
- 5) Scientists from private industry will be admitted if the number of participants will not have to be limited for logistic reasons, but they will not receive any financial support.

* Universities of Fribourg, Bern, Basel, Geneva, Lausanne, Neuchâtel, the Swiss Institute for Experimental Cancer Research (ISREC), the Ecole Polytechnique Fédérale Lausanne (EPFL) and Ticino.

COMMON ACTIVITIES I

Lecture cycle, 1 ECTS

June 13-16, 2010

<h3>Exploring Biological Networks</h3>
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Organizers: Louis-Félix Bersier, Christian Mazza, Didier Reinhardt and Simon Sprecher, Univ. of Fribourg

Site: Eurotel Villars, CH-1884 Villars-sur-Ollon

Accommodation: double room, half-board

Theme: Interactions are ubiquitous and occur at all scales, from electrons to astronomical objects. While interactions between non-living elements are governed by few physical laws, interactions in biological systems are amazingly diverse and complex. A hallmark of living systems, from the molecular to the individual and species level, is the inherent propensity of their components to interact. Without these constellations of exchanges of matter and information, organisms would not be able to function, grow and reproduce.

Interacting components are organized in networks, which lie at the heart of this lecture cycle. During the Villars meeting, leading scientists from different fields - studying networks of genes, proteins, cells, and species - will give a general introduction to their theme and a research talk. The emphasis will be on the analysis of their structure and the modeling of their architecture and dynamics.

Students will become familiar with network thinking and will acquire basic and advanced tools to explore biological systems. We expect that the meeting of researchers and advanced students from diverse fields will in itself generate a dynamic network, from which new ideas and concepts will develop.

Life – emergent properties – self-organization – non-randomness – functioning

Eligibility: presentation of a publication and active participation in discussion groups

Speaker's list: The scientific program, will be announced by posters and on the web (<http://www.3eme-cycle.ch/biologie> or <http://www.cuso.ch>)
For additional information please contact:

Louis-Félix Bersier

e-mail: louis-felix.bersier@unifr.ch, Tel. 026 300 88 69

Registration: For application, please fill in the form below and send to:
Ms Nilgün Sailer, Uni FR, Dép. de biologie, ch. du Musée 10,
CH-1700 FRIBOURG or fill in the same form at on the web:
<http://www.3eme-cycle.ch/biologie>

Registration deadline: 28.5.2010

REGISTRATION FORM

For the lecture cycle "EXPLORING BIOLOGICAL NETWORKS"
(Eurotel Villars, CH-1884 Villars-sur-Ollon) **June 13 - 16, 2010**

Family name: First name:

Date of birth:

Academic position: PhD student, post-doc, assistant, Prof., etc.....

Full address (Univ., Inst., Dept.):.....

..... Zip/ City.....

Telephone:..... Fax:

E-mail:.....

Thesis supervisor:.....

Date of arrival: (Required for room reservation)

Date of departure:.....

I wish to share my room with

Date: Signature:

Please send the registration form **before Mai 28, 2010** to Ms Nilgün Sailer, Université de Fribourg, Dép. de biologie, ch. du Musée 10, CH-1700 FRIBOURG
Tel. 026/300 88 36, Fax: 026/300 9896, e-mail: **Nilgun.Sailer@unifr.ch**

NB/ Your registration is considered as definitive. If you have not cancelled it before June 4, 2010, the accommodation costs will be charged to you (except in case of a illness (documented by a medical certificate) or other circumstances beyond your control).

The papers to be discussed during Journal Club sessions at Villars-sur-Ollon will be available on the web.

COMMON ACTIVITY II

Minisymposium, 0.5 ECTS

February 18-19, 2010

LAUSANNE GENOMICS DAYS 2010

Organizers: Keith Harshman, Otto Hagenbüchle, Jacqui Beckmann, Felix Naef, Philippe Reymond, Laurent Keller

Site: University of Lausanne, Center for Integrative Genomics, Genopode Building, Auditorium C, 1015 Dorigny

Theme: Les développements récents dans le secteur de la génomique et ses applications à différents secteurs de la recherche seront présentés. L'utilisation de la génomique pour la compréhension des théories évolutives et écologiques ainsi que l'analyse du fonctionnement et de la biodiversité des écosystèmes sera illustrée. L'importance de l'analyse globale du génome dans le domaine médical et cellulaire sera également traitée. Finalement, des exposés de génomique comparative permettront de montrer comment on arrive à mieux comprendre des principes généraux d'évolution des génomes.

Registration: on-line at <http://www.3eme-cycle.ch/biologie>

For additional information please contact:
keith.harshman@unil.ch, Tel. 021 692 39 06

Deadline for registration: 31.1.2010

Seminar: 1 ECTS

16-18 June 2010

Grassland management: designing tomorrow's farmland for biodiversity and agricultural production

Organizers: Raphaël Arlettaz (Prof, Bern), Markus Fischer (Prof, Bern), Jérôme Pellet (Dr., Bern)

Site: Université de Bern

Theme: Les milieux agricoles couvrent une vaste part des terres dans la plupart des pays. Elles ont subi une intensification massive avec l'avènement de nouvelles techniques culturales dès la seconde guerre mondiale (mécanisation, usage massif de fertilisants et pesticides de synthèse). Cette intensification a conduit à des pertes dramatiques en termes de biodiversité: les espèces associées aux terres cultivées (Kulturfolger) ont vu leurs effectifs plonger, plusieurs se sont même éteintes localement. Depuis les années 1990, la compensation écologique tente de remédier à cette érosion biodiversitaire en promouvant de nouvelles structures permettant, théoriquement, la survie sinon le retour d'espèces au statut précaire. Ces mesures ont toutefois eu des effets mitigés, qui exigent de repenser leur pertinence et de les adapter aux véritables besoins de la biodiversité, ceci d'autant plus que des centaines de millions de francs sont distribués chaque année, notamment dans la Communauté européenne et en Suisse, sous forme de subventions "biodiversité" au monde agricole. Le workshop proposé établira un état des lieux, définira de nouvelles priorités de recherche qui déboucheront sur un affinement des modèles écologiques et socio-économiques permettant une préservation véritable de la biodiversité en milieu agricole.

Registration: **Mrs. Susanne Maurer**
Institute of Ecology and Evolution
University of Bern
Baltzerstrasse 6
CH - 3012 Bern Switzerland
Tel. +41 31 631 30 09, Email: susanne.maurer@iee.unibe.ch

The deadline for registration is: 1st of May 2010

Symposium, 1 ECTS

September 6-7, 2010

Swiss Yeast Mini-Symposium 2010
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Organizers: Claudio De Virgilio, Univ. of Fribourg, Roger Schneider, Univ. of Fribourg, Andreas Mayer, Univ. of Lausanne, Françoise Stutz, Univ. of Geneva

Site: Univ. of Fribourg

Theme: This Swiss Yeast Mini-Symposium 2010 will cover recent advances in yeast cell biology with a particular focus on the following four major topics:

Cell Growth Control

Autophagy

Membrane and Lipid Dynamics

Control of Gene Expression

In each of the four sessions, 3-4 internationally renowned keynote speakers will present overviews of their corresponding research interests and illustrate their own most recent scientific advances. These lectures will be complemented with shorter talks, which will be selected amongst the participating students and postdocs. Moreover, each participant will also have the opportunity to present his or her own work during poster sessions.

The mini-symposium lasts two days and should be an exciting event for both undergraduate and graduate students, who will also have the possibility to interact with speakers and make personal contacts during the days and an evening dinner. The mini-symposium is open to everybody and we expect that a large part of the Swiss yeast community will join the event to exchange both scientific ideas and the most recent methodological and technical advances in yeast cell biology.

Registration: Through the web interface: <http://www.3eme-cycle.ch/biologie>

Deadline for registration: 1.8.2010

Practical course, 2 ECTS

September 2010

Computational Analysis of Ultra-High-Throughput (UHT) Sequencing Data

Organizers: P. Bucher (ISREC/EPFL/SIB), K. Harshmann (UNIL), C. Iseli (LICR/SIB), J. Rougemont (EPFL/SIB), L. Falquet (SIB) and V. Ioannidis (SIB)

Site: University of Geneva

Theme: Research based on ultra-high-throughput (UHT) sequencing technologies is to a large extent bioinformatics: The aims of the course are: (i) UNDERSTANDING the biological questions addressed with these technologies, the nature of the data (Including noise and artifacts), the current state-of-the-art algorithms to interpret the data, and the computational challenges in the near future. (ii) KNOWING the major application areas of UHT sequencing, (iii) BEING ABLE to learn more from the corresponding scientific literature. The programme will include UHT sequencing technologies, raw data management, base calling, de novo and homology-driven assembly of genomes, large-scale genotyping (SNP, CNV), ChiP-seq, transcription start site mapping and gene expression profiling.

Required knowledge: a) Masters level knowledge in bioinformatics and genomics.
b) Computational skills: UNIX command line and one scripting language (Perl, Python, Ruby, etc.)

Registration: Through the web interface only: <http://www.3eme-cycle.ch/biologie>

Deadline for registration: July 31, 2010

Important remark: *A registration fee of CHF 100.- is required per participant.*

Information: Vassilios.Ioannidis@isb-sib.ch

Additional information about the course is available at <http://www.ch.embnet.org>

To be informed of the activities of the Swiss EMBnet node, please subscribe to the embnet-news mailing list using the corresponding web pages.

Practical course, 2 ECTS

January 25th to January 29th 2010

Introduction to statistics for biologists
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Organizers: Vassilios Ioannidis (SIB) and Frédéric Schütz

Site: University of Geneva

Theme: The course is designed to provide graduate students in the biomedical sciences with experience in the application of basic statistical analysis techniques to a variety of biological problems. Attendees will work through short tutorials on the topics discussed in the class. During the practical exercises students will learn how to work with the widely used "R" language and environment for statistical computing and graphics.

The course participants are also strongly encouraged to submit in advance (until 09 Jan 2010) any real-world questions, including the relevant data, that they may have; problems which fit the workshop's goals might be discussed with the teachers during the Friday's afternoon exercise session.

Required knowledge: No prior statistical knowledge is required in order to attend the course. However, we strongly recommend you to get familiar with the R statistical analysis package prior attending the course. (see website for more details)

Registration: Through the web interface only: <http://www.3emecycle.ch/biologie>

Deadline for registration: January 9, 2010

Important remark: *A registration fee of CHF 100.- is required per participant.*

Information: Vassilios.Ioannidis@isb-sib.ch

Additional information about the course is available at <http://www.ch.embnet.org>

To be informed of the activities of the Swiss EMBnet node, please subscribe to the embnet-news mailing list using the corresponding web pages.

Practical course, 3 ECTS

Summer 2010

New tools for cellular imaging: sample preparation and image acquisition

Organizers: Dr. Arne Seitz, Prof. Dr. Theo Lasser

Site: EPFL, Lausanne

Theme: This course on advanced biomicroscopy is covering the fundamental working principles of modern light microscopes used in life science. This also comprises the physical basics of optical physics as this is required for a in-depth understanding. Besides theoretical aspects it is also integral part of the course to get in touch and use modern light microscopes. The aim is to learn and understand how they can be used to answer biological questions. Therefore also image processing will be taught throughout the course.

Registration: Dr. Arne Seitz
Head of Bioimaging and Optics Platform (BIOP)
Swiss Institute of Technology (EPFL)
Faculty of Life Sciences
Station 15
CH-1015 Lausanne

Phone: +41 21 693 9618
Fax: +41 21 693 9585
<http://biop.epfl.ch/>

Deadline for registration: 1st June 2010

Seminar /Conference: 1-2 ECTS

September 2-3, 2010

Evolutionary and ecological genomics of adaptation

Organizers: Christoph Haag, Université de Fribourg, Christian Lexer,
Université de Fribourg, Laurent Excoffier, Universität Bern

Site: Université de Fribourg

Theme: Natural environments differ in many biotic and abiotic aspects, and how animals and plants adapt to these different environments is one of the fundamental questions of ecology and evolutionary biology. In recent years, new genetic and genomic methods have been developed, which make it possible to directly study the genes involved in such adaptations. This has allowed many new, exciting insights, for instance into the functional mechanisms of adaptation, the molecular evolution of the genes involved, the genetic architecture of evolving traits, the question of whether convergent evolution is due to mutations in the same genes, and ecological speciation. We propose a symposium to bring together about six invited speakers including top empirical and theoretical evolutionary biologists and a number of younger researchers to discuss recent developments in this fast developing field.

Registration: Through the web interface only:
or
Catherine Cuennet
Département de Biologie
Ecologie et Evolution
Université de Fribourg / Pérolles
Chemin du Musée 10
CH-1700 FRIBOURG
e-mail : catherine.cuennet@unifr.ch
Tél.: ++41 26 300 88 50, Fax : ++41 26 300 96 98

Deadline: 30 June 2010

Seminar / Conference, 1 ECTS

June 18, 2010

Phylogenomics: new perspectives for phylogenetic studies

Organizers: J. Pawlowski, J. Montoya – University of Geneva

Site: Department of Zoology and Animal Biology, University of Geneva

Theme: Recent development of massive sequencing technologies has open new perspectives for rapid acquisition of large amounts of transcriptomic and genomic data. Phylogenetic analyses based on large number of genes have successfully resolved some evolutionary problems. However, increasing number of genes does not seem to be sufficient in many cases.

During the symposium, several examples of phylogenomic studies will be present and their advantages and limitations will be critically discussed

More information at <http://zoologie.unige.ch/web/en/seminars>

Registration: by e-mail to jan.pawlowski@unige.ch

Deadline: 1st June 2010

Workshop 3 ECTS

Dates to be announced on the web, 2010

Evolutionary Biology Workshop in the Alps

Organizers: Tadeusz Kawecki, University of Lausanne

Site: La Fouly

Theme: This course is based on a concept developed by Steve Stearns and John Maynard Smith. It has a character of a retreat; it takes place in a beautiful small Alpine village (La Fouly), which will allow you to focus while being able to enjoy the landscape and the Alpine flora.

The main goals of this course are to develop the following skills:

- developing your scientific ideas through discussions in groups
- thinking critically and expressing oneself clearly
- turning a general idea into a research project
- writing a grant proposal and defending it
- doing it all in English

It is you, the students, who will be in charge in this course. You will be divided in groups of 4-5 students. In those groups, you will work on **your** ideas. You, as a group, will decide what the important questions in broadly defined evolutionary biology are, you will choose one, and develop a research proposal that will address it. The faculty will visit the groups during the discussions to answer your questions, provide coaching and give you feedback on your proposal, but they will generally take the back seat. Additionally, the faculty will give informal talks about their research and be available for informal discussion. At the end you will present your proposal to other participants, we will have a party and go home.

Prerequisite: Background knowledge and interest in evolutionary biology

Registration deadline: 28 February 2010

BIOLOGIE VEGETALE

Symposium, 1 ECTS

September 7-8, 2010

Frontiers in Developmental Cell Biology- Plants and Beyond

Organizers: Niko Geldner (University of Lausanne)
Christian Hardtke (University of Lausanne)

Site: University of Lausanne (Biophore)

Theme: Research on the mechanisms that generate and maintain cellular organisation has expanded rapidly during the last decades, leading to major breakthroughs in our understanding of cellular function. This development has been driven by the realisation that a multitude of physiological and developmental processes can only be understood if cellular behaviour of individual, specialised cells within their organismic context is taken into account. This conference will bring together outstanding researchers that have taken up the challenge to go beyond isolated cell systems and to analyse the specifics of cellular organisation and responses within the organism. The conference is centered around developmental cell biology in plants, but will go beyond that and feature some of the most forward thinking and visionary developmental cell biologists in the animal field. Our aim is to promote a developmental focus on cell biology, which will be crucial for a truly mechanistic understanding of plant life in the future. In addition, we hope to foster exchanges between plant and animal developmental cell biologists about the conserved and specific features in the organisation of eukaryotic cells.

Registration: Registrations will open beginning 2010. Please check <http://www.3eme-cycle.ch/biologie/> or

Contact address:

Niko Geldner
Department of Plant Molecular Biology
Université de Lausanne, 1015 Lausanne

Tel: +41 21 692 4192
Tel: +41 21 692 4195
Email: niko.geldner@unil.ch

The deadline for registration August 2010

Symposium, 1-2 ECTS

September 6-10, 2010

N₂-fixing associations with plants

Organizers: Xavier Perret (University of Geneva)
Hans-Martin Fischer (ETH Zürich)

Site: Centre International de Conférences Genève (www.cicg.ch)

Theme: A number of microorganisms achieve the environmentally essential function of reducing atmospheric nitrogen into a reduced form that can be assimilated by other organisms. In some cases, this process occurs in symbiosis with plants that benefit greatly from such a privileged nutrient input. Taking advantage of the 9th European Nitrogen Fixation Conference (9th ENFC) that will be held in Geneva in September 2010, we offer to members of the CUSO network the possibility to attend their sessions of choice. World leading experts will discuss the latest advances in many related research fields including the global impact of biological nitrogen fixation, the evolution, biodiversity and genomics of diazotrophs and their hosts, the various forms of nitrogen-fixing associations with plants, the genetics and molecular mechanisms of infection processes and symbiotic N₂-fixation. Cost of travel and accommodation, as well as most of the registration fees will be sponsored by CUSO.

Registration: Online as of November 2009 at the conference web site:
<http://www.enfc2010.ch/>

For more informations please contact:

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Département de Botanique et Biologie Végétale
Unité de Microbiologie
30, quai Ernest-Ansermet
CH-1211 Geneva 4

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Email: xavier.perret@unige.ch

The deadline for registration: May 2010