



GEEKS IN BIOLOGY

An Ecoinformatics Course for Advanced Learners

30 July–12 August 2017

Course Description:

In this lecture series, students will learn about the different tools and techniques used by biologists and ecologists in their everyday work. In modern biology research, huge amounts of data are generated, and we need effective tools to process them. However, in most of the cases, there are no ready-made informatics solutions available for us. Thus, biologists should be creative and innovative. Frequently, we develop our own tools, and we also often use complex software solutions for preparing and processing data in individual research projects.

In this series of lectures, biologists and ecologists from various subject areas will introduce the students to their special informatics techniques. In addition to the professional program, students will be welcome to take part in all the cultural events related to the regular Hungarian Language and Culture Summer Course offered by Debrecen Summer School.



Programme Directors:

Dr. MIKLÓS BÁN, *Lecturer in Dept. Evolutionary Zoology (University of Debrecen)*
Dr. PÉTER SZAFFKÓ, *Director (Debrecen Summer School)*

Dates & Reminders:

- registration: 30 July (Sunday), 14:00–18:00
- course starts: 31 July (Monday)
- check-out time: 12 August (Saturday), before 10:00

Accommodation and Meals:

- on-campus accommodation: Kossuth Lajos Dormitories (single, double or 3-bedded rooms)
- upon request, we can book a room in a hotel (please contact the Summer School staff)
- full board (breakfast, lunch and dinner)

Application Deadline: 30 June 2017

To apply, please send us a completed application form with a photo and a proof the advance payment of 70 EUR, which will be counted towards the tuition fee.

Course Fees*:	2 weeks
Tuition	770 EUR
Advanced payment on the tuition fee (non-refundable)	70 EUR
On-campus accommodation:	
3-bedded room	155 EUR
double room	240 EUR
single room	340 EUR
Full board	240 EUR

* All bank charges must be paid by the remitter. (Our bank charges are 10 EUR if you pay in Euro)



PROFESSIONAL PROGRAMME**:

- Databases
 - PostgreSQL usage and development
(*Dr. Miklós Bán - Dept. of Evolutionary Zoology*)
- Doing reproducible science
 - make, markdown and m4
(*Prof. Zoltán Barta - Dept. of Evolutionary Zoology*)
- Genomic data processing
 - In perl
(*Dr. Zoltán Barta - Dept. of Evolutionary Zoology*)
- Geoinformatics
 - Using GPS tools: from handheld GPS to high accurate devices.
Practice and software usage
(*Dr. Csaba Tóth - Dept. of Physical Geography and Geoinformatics*)
 - Drones in practice & analysing raster images
(*Dr. Gergely Szabó - Dept. of Physical Geography and Geoinformatics*)
- Image and video processing
 - Command Line Swiss Army Knife-s: Image magick, mplayer, ffmpeg.
(*Dr. Miklós Bán - Dept. of Evolutionary Zoology*)
- Text processing
 - Command Line Swiss Army Knife-s: Bash, perl, awk, sed, pipe
(*Prof. Zoltán Barta, Dr. Miklós Bán - Dept. of Evolutionary Zoology*)
- Regular expressions
 - Theory and practice in perl, R, sed, grep, awk and bash
(*Dr. Miklós Bán - Dept. of Evolutionary Zoology*)
- Analysis of spatial data in biology
 - Maxent, QGis, R packages: spatstat, rgdal, maptools, raster, sp
(*Dr. János Tóth - Dept. of Evolutionary Zoology,*
Dr. Zsolt Végvári - Hortobágy National Park Directorate)
- WEB based geoinformatics
 - Protocols: WMS, WFS;
 - Servers: Mapserver;
 - Developer tools: Openlayers.
(*Dr. Miklós Bán - Dept. of Evolutionary Zoology*)

*** We strongly recommend that students have their own laptop. The lectures will be mostly Linux based. A Linux introduction lesson will be provided on-demand at the start.*

Please note that launching the course will require the registration of at least 6 participants.