

BRAAVOO

Workshop and Creative Design Course

31 January – 6 February 2016
University of Lausanne
Switzerland

The BRAAVOO Workshop and Creative Design Course, organized in collaboration with the Envirobot "BioDesign for the Real World" initiative, will provide an opportunity for 5 days of intensive learning and hands-on experience in biosensor theory and practice, culminating with the construction and use of both a bacterial biosensor and a field-portable DIY fluorescence detector, that each student will make. The course will offer possibilities to design, produce, and test a variety of heavy metal or organic compound biosensors.

Course lectures will be given in English, and are planned to offer a dynamic and interactive opportunity to explore aspects of biosensor development and use in environmental monitoring. The program will furthermore include evening lectures and a visit to the Hackarium, a local biohacker space. Independent researchers, Masters and PhD students and postdoctoral fellows at the interface between microbiology and engineering are particularly invited to attend. The idea is to encourage multidisciplinary integration of biology and engineering to help solve real-world problems.

Sunday, 31 January

Arrival (UNIL – Amphipole)
16:00 Registration and Welcome
Science 'speed-dating' among participants
Social Dinner

Monday, 1 February

8:30 Biosensor design: introduction, preparation of DNA parts
13:30 Electronic design: introduction, part cutting and assembly
19:30 Lecture: Bacterial biosensors and applications (Shimshon Belkin)

Tuesday, 2 February

8:30 Biosensor construction: parts ligation and transformations
13:00 Sensor building: soldering and programming
19:30 Lecture: Using live cells for ecotoxicology assessment (Vivian Lu, Kristin Schirmer)

Wednesday, 3 February

8:30 Biosensor building: verifying constructions, storage, test preparations
13:30 Sensor building: testing electronic functions
17:30 Lecture: Principles and applications of nanoimmunobiosensors (Laura Lechuga)
19:00 Visit to the Hackarium, DIY Biology Center, Renens
Round-table and brainstorming

Thursday, 4 February

8:30 Calibration of biosensor responses in standard laboratory settings
13:30 Biosensor testing on field samples
19:30 Lecture: Robotics and automated sensor platforms (Auke Ijspeert)

Friday, 5 February

8:30 As necessary: repetition of biosensor experiments, wrapping up results, quantitative data analyses
13:30 Workshop on environmental testing (Hiroe Sachiko)
15:30 Public Show-and-Tell (Presentations by participants)
19:30 Farewell dinner

INVITED LECTURERS

Laura Lechuga, CSIC-CIN3, Barcelona - Spain
Shimshon Belkin, Hebrew University Jerusalem - Israel
Auke Ijspeert, EPFL - Switzerland
Vivian Lu, Eawag, Dübendorf - Switzerland
Kristin Schirmer, Eawag, Dübendorf - Switzerland

INSTRUCTORS

Hiroe Sachiko, EPFL
Robin Scheibler, EPFL
Yoann LeDigabel, UNIL
Siham Beggah, UNIL
Jan Roelof van der Meer, UNIL

COURSE ORGANIZATION

Hiroe Sachiko, EPFL
Jan Roelof van der Meer, UNIL

REGISTRATION

There are 20 places available for the course.

Registration will open 1 November 2015 via the website www.braavoo.org

Deadline for registration is 11 December 2015.

Candidates will be informed by 16 December about their acceptance.

FEES

Independent researchers, Masters students	150 CHF
PhD students, and postdoctoral researchers	300 CHF
Senior researchers	350 CHF
Corporate/Industrial participants	500 CHF

These fees will include all training materials, facilities use, lunches, five dinners and coffee breaks, but not accommodation or travel.

FURTHER DETAILS

Certificates of participation will be provided after successful completion of the course, and each participant can come home with a DIY fluorescence sensor rig!

For more information on accommodation and travel, and access to the online registration form, please visit www.braavoo.org (available on 1 November 2015).

www.braavoo.org | wiki.biodesign.cc



BRAAVOO
biosensors for real time monitoring of marine contaminants

