

IMAGE PROCESSING AND ANALYSIS IN CELL PHYSIOLOGY

Advanced Training Workshop

30 hours of lectures, practical demonstrations
in the computer laboratory

Department of Biology, University of Aveiro
3810-193 Aveiro, Portugal

November 29
-
December 3
2010

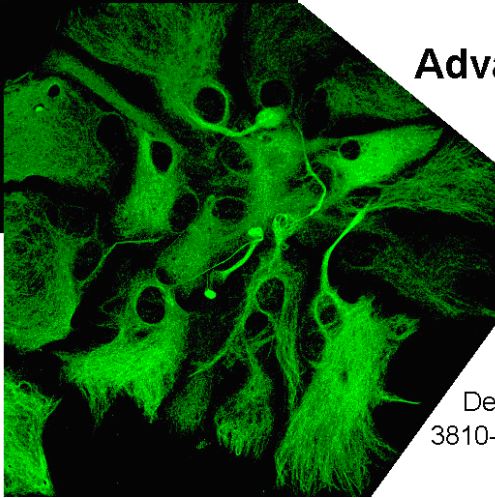


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Objectives & Main Topics

Objectives

This 30 hour post-graduate course and workshop aims to provide knowledge and practical skills in computer-aided image processing, analysis and interpretation of biological still and time-laps images. The emphasis of the course is on practical procedures and results. The course is addressed to PhD and MSc students and to scientists with a background in Biology, Biomedicine, Biotechnology, Chemistry or related fields.

Lecture Topics

- Introduction to image processing and analysis in cell physiology, examples of still image and time-laps image analysis and statistical interpretation of the data.
- Introduction to the imaging software (ImageJ, Photoshop, Paint.net GimPhoto,...). Digital image representation, filters, image improvement, simple characterization of images, thresholding, binary image processing, segmentation and counting of objects, characterization of objects in images, measurements of feature size, shape and position, densitometry and colour measurement, transformation to the frequency domain (Fourier transformation), analysis in the frequency domain.
- During the course, the attendees will learn basics of GNU Octave and Matlab® high-level programming language. Practical example of matrix based image processing will be presented: generation of ratio image, extracting intensity variable-with line profiles, alignment of time laps images, surface area measurements.

Coordination & Lecturers

Course Coordinator

Paula Gonçalves

CESAM, Departamento de Biologia, Universidade de Aveiro, Portugal

Paula Gonçalves received her PhD in Biochemistry from the University of Coimbra, Portugal, in 1992. One year later, she joined the Department of Biology, University of Aveiro, Portugal, first as an Assistant Professor and later on as an Associate Professor. In 2002, she became an Integrated Researcher of the Centre for Environmental and Marine Studies. Her main research interest deals with presynaptic mechanisms of neurotransmission, including the aluminium toxicity and development of experimental models for screening in environmental neurotoxicology.

Lecturer

Marko Kreft

Faculty of Medicine, University of Ljubljana, Slovenia

Marko Kreft is an Associate Professor in University of Ljubljana. He is teaching physiology, molecular cell physiology and advanced microscopy in the Faculty of Medicine, University of Ljubljana. He is engaged as an expert and technical manager in Carl Zeiss Reference Center for Confocal Microscopy, Faculty of Medicine and Celica Biomedical Center. In 2005 Marko Kreft was awarded by the state Zois reward («Zoisovo priznanje») for important scientific achievements. He is a secretary general of the Slovenian Physiological Society. His research focuses on the physiology of the astrocyte cells, especially on regulated exocytosis, vesicle trafficking and glucose metabolism. He is also studying fusion pore formation in exocytotic vesicles in endocrine cells. Marko Kreft developed several procedures and software tools for image analysis, image processing and signal analysis.

Participants

The course is open to participants other than postgraduated students at the Department of Biology of the University of Aveiro, but limited to a maximum total number of 20 participants. A Confirmation of Acceptance will be sent by email with full information concerning fee payment.

Fees

The course fee is 250 €. However, if specific conditions are met, reduced fees of 100 € will be applied to:

- Postgraduated students of other master and doctoral programmes
- Members of CESAM
- Members of Sociedade Portuguesa de Neurociências
- Members of Sociedade Portuguesa de Bioquímica
- Members of Sociedade Portuguesa de Farmacologia
- Members of Ordem dos Biólogos.

Travel & Accommodation

Travel to Aveiro

Aveiro has an excellent railway service to Porto (situated 60 km North of Aveiro) and Lisbon (situated 250 km South of Aveiro). Please visit www.cp.pt for detailed information on train connections.

The Department of Biology, where the course will take place, is located in the Aveiro University Campus. (<http://www.ua.pt>). Aveiro University is located in walking distance from the railway station (<http://www.av.it.pt/aveirocidade/pt/mapa/mapa.htm>).

Accommodation

Several accommodation options are available in the city of Aveiro, from a youth hostel, pensions and hotels. We can easily pre-book a number of rooms, in a hotel within walking distance from the University with a convenient price.

More informations

For more information, please contact: Paula Gonçalves, +351 234370776
pgoncalves@ua.pt

Sponsors

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Registration Form

Please e-mail to pgoncalves@ua.pt or fax to Paula Gonçalves, +351 234 372 587
until November 22nd

PERSONAL INFORMATION

Name: _____

E-mail Address: _____

Institution: _____

Address: _____

Country: _____

Academic Qualifications (most recent first):

Degree	Subject/Specialty	Institution	Academic Year

FEE (please tick): 250 € or 100 €

Proof of eligibility for discount: No Yes (Please note that if you do not attach a proof of eligibility for discount in support, the discount would not be considered).

ACCOMMODATION (please tick):

I am interested in the pre-booked rooms (from ____ / ____ / 2010 to ____ / ____ / 2010)

I am not interested in the pre-booked rooms

Date: _____

Place: _____

Signature of Participant: _____