



Advanced Course on

BIOMARKERS | 17 - 21 of June, 2013

ESTM – Polytechnic Institute of Leiria

Peniche, Portugal

BIOMARKERS COURSE SCOPE

This one-week workshop that will be held from the 17th to the 21st June 2013 at the ESTM - Polytechnic Institute of Leiria, Peniche, Portugal, aims to provide knowledge on the development of biomarker tools to assess and understand the impact of stressors in the environment by establishing a link between different levels of the Biological Continuum. The course is composed by theoretical and practical (hands-on) lectures and is targeted to scientists and PhD and MSc students with a background in Biology, Environmental Sciences, Chemistry, Environmental engineering or related fields, members of consulting companies, and of private and public institutions responsible for environmental management. All lectures and training sessions will be held in English.

BIOMARKERS PROGRAMME

This course will comprise both theoretical and hands-on practical lectures. All lectures are in English.

Monday, June 17th

9h00 – 9h30 – *Welcome to participants*

9h30 – 11h00 – *Lecture*

Introduction to biomarkers – Marco Lemos

11h00 – 11h30 – *Coffee Break*

11h30 – 13h00 – *Lecture*

Biomarkers in the field/practical study – Marco Lemos

13h00 – 14h00 – *Lunch*

14h00 – 16h00 – *Field Trip*

Organism collection at a rocky beach

16h00 – 19h00 – *Training session*

Sample preparation of collected organisms

Tuesday, June 18th

9h00 – 11h00 – *Lecture*

Linking different levels of biological organization – Marco Lemos

11h00 – 11h30 – *Coffee Break*

11h30 – 13h00 – *Lecture*

Cholinesterases and Oxidative Stress – Carlos Gravato

13h00 – 14h00 – Lunch

14h00 – 16h00 – *Training session*

Protein quantification

16h00 – 19h00 – *Training session*

Cholinesterase quantification

Wednesday, June 19th

9h00 – 11h00 – *Lecture*

The end of the line... Damage to the organism – Carlos Gravato

11h00 – 11h30 – *Coffee Break*

11h30 – 13h00 – *Lecture*

Insights into Genomics – Sara Novais

13h00 – 14h00 – Lunch

14h00 – 16h00 – *Training session*

Glutathione S-transferase quantification

16h00 – 19h00 – *Training session*

Data treatment

Thursday, June 20th

9h00 – 11h00 – *Lecture*

Genomics case study: From genes to population – Sara Novais

11h00 – 11h30 – *Coffee Break*

11h30 – 13h00 – *Lecture*

Giving fatty acid a biomarker profile – Carla Tecelão

13h00 – 14h00 – Lunch

14h00 – 16h00 – *Training session*

Statistical Treatment of Data

16h00 – 19h00 – *Training session*

Fatty Acid Determination Using Gas Chromatography

Friday, June 21th

9h00 – 11h00 – *Lecture*

Proteomics – Ana Cristina Esteves

11h00 – 11h30 – *Coffee Break*

11h30 – 13h00 – *Lecture*

From Biomarker to Biosensor – Roberto Gamboa

13h00 – 14h00 – Lunch

14h00 – 19h00 – *Presentations*

Evaluation period for attendees pursuing diploma

BIOMARKERS COURSE FEES & REGISTRATION

Normal course fee - 500 Euros

Student fee - 250 Euros

LIMITED TO 20 PARTICIPANTS

Two student grants that will cover the course fee are available. To apply for a grant, send motivation letter and CV to marco.lemos@ipleiria.pt until the 31st of May.

For more information concerning registration, accommodation, and payment details please contact marco.lemos@ipleiria.pt.

BIOMARKERS COURSE LECTURERS

Marco Filipe Loureiro Lemos (course coordinator)

Marco Lemos holds his PhD in Biology since 2009 and is now Professor Adjunto at the Polytechnic Institute of Leiria. Presently he is also a researcher at CESAM-UA (Centre of Environmental and Marine Studies) and at GIRM-IPL (Marine Resources Research Group). He is now involved in several post-doc, PhD and MSc supervision as well as national and international collaborations (Un. Aveiro, Portugal; Un. Coimbra, Portugal; Ghent University, Belgium; VU Amsterdam, The Netherlands; IRET, Costa Rica; CSIC, Spain; and ECT Oekotoxikologie GmbH, Germany) in works involving the study of toxicological mechanism pathways using “omic” technologies and other biomarker tools to assess contamination in terrestrial, freshwater and marine environments. He has authored over 60 communications in international conferences and several articles in international peer-reviewed journals and book chapters – including the review “Proteins in ecotoxicology - How, why and why not?” in the renowned journal *Proteomics*. He is the PI of FCT project EnvironOme – Integrating Omics in ecotoxicology: tools for environmental risk assessment (PTDC/AGR-PRO/3496/2012).

Ana Cristina Esteves

Ana Cristina Esteves graduated in Biology by the University of Aveiro (UA) in 1996 and completed a PhD degree in Biology by UA in collaboration with the Center for Neuroscience and Cell Biology, University of Coimbra in 2002 and is now an Invited Professor at the Department of Biology of Aveiro University as well as a Researcher of CESAM-UA (Centre of Environmental and Marine Studies). AC Esteves has established national and international collaborations with scientists from UK, Belgium, Netherlands and USA. International and national collaborations have also resulted in the participation on 6 funded research projects. She has participated in the organization of several international and national courses/congresses. AC Esteves is currently the main supervisor of several PhD student and MSc students. Her investigation is mainly centered in the unravelling the interaction of microorganisms with other organisms as well as their response to environmental changes. More specifically, she is interested in understanding the molecular pathways of the interactions between pathogens and their hosts and how these interactions are altered by the climate changes we have been assisting to.

Carla Sofia Ramos Tecelão

Carla Tecelão holds her PhD in Food Engineering since 2011, from the Technical University of Lisbon, and is now an Adjunct Professor at the Polytechnic Institute of Leiria. Currently, she is also a researcher at CEER-ISA (Centre of Biosystems Engineering) and at GIRM-IPL (Marine Resources Research Group). She has participated in several research projects funded by FCT concerning the field of biocatalysis in lipid modification. She is now supervising 4 Master theses. Carla has authored several articles published in international peer-reviewed journals.

Carlos Gravato

Carlos Gravato is currently a postdoctoral researcher at CESAM-UA (University of Aveiro). Since the completion of his PhD in 2002, he was been working as a postdoctoral fellow (2002-2005: CESAM, University of Aveiro; 2005-2008: CIIMAR, University of Porto), invited assistant professor (2003-2006: Department of Biology, University of Aveiro), and assistant researcher (2008-2013: CIIMAR, University of Porto). He has been working in the fields of ecotoxicology, environmental biology and behavioural ecotoxicology. Carlos Gravato has participated in 5 research projects funded by FCT and 2 European projects. He has authored more than 40 papers in international peer reviewed journals and 120 communications in national and international conferences. Carlos was chair (2010) or co-chair (2007 and 2008) of sessions of Annual Meetings of the Society of Environmental Toxicology and Chemistry – SETAC Europe – and co-chair (2010) of a session of National Congress of Ecology. He has supervised 1 postdoctoral researcher, 2 PhD and 6 Master theses, and was member of the jury of 7 PhDs and 6 Masters. Recently, one of his papers was awarded by SETAC with RifCon Award 2013 that distinguishes the best paper published in 2012 in ecotoxicology, ecoepidemiology and biological/biochemical studies.

Roberto Carlos Marçal Gamboa

Roberto Gamboa holds his PhD in Physics since 2001 from Lisbon University, has a Post-Graduation in “Dirección Estratégica de Universidades” from the UNESCO Cátedra of Direcció Universitària, Universitat Politècnica da Catalunya, Barcelona 2008, and benefited from a Nanotechnology Summer School from Oxford University in 2009. He is now Professor Coordenador at the Polytechnic Institute of Leiria and a researcher at SESUL (Sustainable Energy Systems University of Lisbon) and at GIRM-IPL (Marine Resources Research Group). He is co-author of an international patent WO2005/100644/US2007/0241481, presented over 30 international seminars and communications in international conferences and co-authored several articles published in international peer-reviewed journals.

Sara Calçada Novais

Sara Novais is currently a postdoctoral researcher at CESAM-UA (Centre of Environmental and Marine Studies, Univ. Aveiro). Since her biology degree in 2007, she has been specializing in the fields of ecotoxicology, genomics and environmental biology. During her PhD, in collaboration with the Univ. of Antwerp in Belgium, she developed molecular tools for gene expression analysis in an important test species in ecotoxicology. These molecular techniques, along with other biomarker tools, have been applied to study the effects of environmental stressors at different levels of biological organization: from genes to population. This linkage between effects at different levels is one of her main research interests along with biomarker and mechanisms of chemical action discoveries. She has authored 26 communications in international conferences, including a keynote presentation given by herself at the International Conference on Environmental OMICS in Guangzhou, China (2011). Since 2008, she has published 16 papers in international peer-reviewed journals.

Within the framework of:



Integrating Omics in ecotoxicology: tools for environmental risk assessment
PTDC/AGR-PRO/3496/2012

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