Organization ECODIM VII 2012

ECOLOGY & DIVERSITY OF MARINE MICROORGANISMS - MICROBIAL OCEANOGRAPHY

Seventh Latin American Microbiology Postgraduate Course (ECODIM-VII), offered by the Austral Summer Institute, University of Concepción & the Pontificia Universidad Católica de Chile at Estación Costera de Investigaciones Marinas (ECIM) in Las Cruces, Chile, January 8 - 28, 2012

- **Pick-up:** International participants (students and instructors), and Chilean participants from other regions, will be met at the airport or bus station in Santiago in accordance to the arrival information that was provided to all participants and staff members by Monica Sorondo (in case of delays or emergencies please contact her via the cell phone number that you received by separate mail).
- **Housing, incl. breakfast** is available for all lecturers and some students from Sunday, January 8 to Saturday, January 28 (or 29) in Cabañas Quirinal in Las Cruces (Av. Las Salinas 747, Phone: 56-35-431476). The other students' quarters are at the Cabañas Don Guillermo in Las Cruces (Alejandro Marín 15, Phone: 09-3734891). Confirmed rooming lists will be emailed to everyone by Monica Sorondo. Lunch will be available at the Estación Costera de Investigaciones Marinas (ECIM) and Dinner at local restaurants.
- **First Get-together**: Sunday, January 8 at 19.30 at Cabañas Quirinal. Pizza and drinks will be available.
- **Course program:** The course starts Monday morning, January 9 at 08.30 in the Main Lecture room at ECIM.
- **Lectures** and Evening **Sessions** will take place in the Main Lecture room at ECIM, **Microscopy**, **Computer Exercises** and **Laboratory work** in specially equipped labs, unless stated otherwise in the program.
- **Language**: The entire course will be taught in **English**. Students will have to make their presentations in English and write the contents of the poster in English.
- The course **Symposium** on "Nitrogen fixation in aquatic environments: strategies and ecology" (special program) will take place on Friday, January 13, at the Auditorium B-201 Faculty of Biological Sciences, at the main campus of the Pontificia Universidad Católica de Chile in Santiago. A bus transport to Santiago and back will be organized by the course. The symposium is open to guests as well.
- **Lectures** last 40 minutes and are followed by extended discussion periods on the topics covered. The **lecturers** are listed on the course program of week 1, which is available on the course internet site.
- If the lecturers agree we will make their **lecture slides** available on the Internet course folder.

- **Staff:** The **TAs** for the entire course are: Juan Francisco Santibañez (Departamento de Oceanografía, Universidad de Concepción, Chile) and Carla Gimpel (Departamento Científico Instituto Antártico Chileno, Punta Arenas). Both are former course students. Nicole Trefault is a Junior Instructor and Rodrigo De La Igelsia, Osvaldo Ulloa and Kurt Hanselmann are the course directors. Monica Sorondo and Esteban Alarcón take care of course logistics. For part of the course we will have opportunities to work with specialists in different fields: Daniel Vaulot and Peter Von Dassow (eukaryotic plankton), Ger van den Engh (Flow Cytometry), Eric Allen (Bio-Informatics).

- **Course topics:**
  Week 1: Concepts of microbial oceanography, sampling trips, diversity of microorganisms, introduction to lab work, defining interests and project work, student presentations. Symposium on "Nitrogen fixation in aquatic environments: strategies and ecology" at Pontificia Universidad Católica de Chile in Santiago
  Week 2: Metagenomics, phylogeny, biothermodynamics, picoplankton, community analysis. Case studies illustrating ongoing research in microbial oceanography and ecology of microorganisms, computer exercises, paper preparation.
  Week 3: Population genomics, ecosystem evolution, N- and S-cycling, alternative molecular techniques for community analysis; presentation of results of laboratory work, designing poster.

- The **sampling trips** to different sites are scheduled to take place on Tuesday and Wednesday, January, 11 and 12 in groups: for groups A & C in the morning, groups B & D in the afternoon. Weather and wind might make program changes unavoidable.

- **Laboratory work** will be carried out in groups in the ECIM Laboratories under the supervision of the instructors and TAs. We intend to cover the following techniques:
  1. Sampling for planktonic and sedimentary community analyses and enrichments of microorganisms
  2. Physical and chemical characterization of the water column (CTD, chemical speciation). Some data are available from time series measurements and from ARGO floats in the Eastern South Pacific OMZ http://www.omz.udec.cl/?op=argos
  3. Characterization of suspended particles (cytofluorometry, phase contrast and fluorescence microscopy)
  4. Culturing of eukaryotic and prokaryotic microorganisms. Defining and designing media for growth
  5. Molecular phylogenetics (DNA extraction, PCR, cloning, plasmid extraction, sequencing, if possible)
  6. BLAST, phylogenetic tree building, environmental libraries and sequencing, community modeling
  7. Analyzing metagenomic sequence data
  8. Compiling appropriate environmental metadata.

- The **microscopes** are installed in the main research building of ECIM.

- **Computer exercises** on metagenomics, phylogenetics, biogeochemistry and bio-thermodynamics will be offered in groups in the computer lab and (with personal laptops) in the main lecture hall at ECIM.

- Each student will participate in a group **research** project, which will contribute towards the course's **poster presentations.**

- Students are asked to present their regular project work, which they carry out "at home" in a **short presentation** that is followed by a discussion (15 minutes each). Monday, Tuesday, Wednesday and Thursday evenings of week 1 are reserved for the student presentations.

- **Evaluation**: The course directors are asked by UdeC to evaluate student performance and give credit for fulfilling the course goals. It is the student's obligation, however, to get the credits accepted by his / her home institution. It is advisable to clarify this point before the course. Students will receive a certificate that documents the fulfillment of the credit requirements. Full credit requires:
  a) Giving a 15-minute presentation on the work, you are presently involved in at your home institution (during week 1 of the course) (counts 10%).
  b) Presenting the essence of an innovative scientific paper, selected by the student, in 25 minutes (incl. discussion) in English and being able to respond to questions related to it. The paper should be relevant to the course topics (marine microbiology, ecology, diversity, genomics) and your particular scientific interests but it has to be different from your project work "at home" (counts as individual exam at the end of the course) (30%). The paper presentations will take place towards the end of week 2.
  c) The presentation of the course research results (counts as an individual and group effort) (30%).
  d) The contribution to the poster (group effort) (30%).

- Successful participation on all aspects of the course will be honored with a **certificate**, which lists the main contents of the course. For credit recognition the detailed contents, as listed in the weekly schedules, should be presented in addition to the home crediting office.

- **Internet site**: Newest versions of the course information are available at the address http://www.profc.udec.cl/ecodim/
  An interactive course site is available on the learning platform OLAT from the beginning of January to the end of March https://www.olat.uzh.ch/olat/url/RepositoryEntry/4773249024/CourseNode/83591083552889 . Personal login and password for access to this course site will be sent to all participants via the e-mail address, which you listed on your application form.
  We will use this site to upload all pertinent information regarding the course. Also outlines of the daily work will become available on the course internet site.

- **ECODIM is also on FACEBOOK**: The site will be update while the course 2012 is going on http://www.facebook.com/group.php?gid=20128635388

- We aim at summarizing the high quality course research work by producing **posters**. You are invited to present these posters at your home institution and – under certain conditions - at national and international scientific meetings and send valuable feedback and suggestions to the course organizers.