



WAGENINGEN  
UNIVERSITY & RESEARCH



University  
of Antwerp



## Graduate Course on Speciation and Bioavailability of Metals, Organics, and Nanoparticles

A new edition of the postdoctoral course on Speciation and Bioavailability is scheduled for **30 September – 4 October 2019**. PhD students and postdocs who are entering the field or want to deepen their knowledge on the subject are invited to apply for participation. Candidates from all over the world are welcome. The course is part of the Dutch SENSE research school program and is an approved component of the SETAC Europe Environmental Risk Assessors Certification. The course venue will be in **Antwerpen, Belgium**.

The course program will focus on the analytical and physical chemistry of metal ions in complexing aqueous environments and the bioavailabilities of different species. Due attention will also be given to the speciation and bioavailability of organic compounds. Modern analytical speciation techniques such as DGT, PLM, DMT, stripping voltammetries, ligand exchange methods, SPME, radiotracer techniques, etc. will be discussed in methodological detail. The thermodynamic and kinetic backgrounds of metal ion binding by simple ligands, macromolecular complexing agents, colloids and nanoparticles will be a key topic. Particular attention will be paid to the speciation and physicochemical characterization of nanoparticles, including plastic particles, as well as the bioavailability of nanoparticulate chemical species. Existing equilibrium speciation codes will be critically tested in interactive exercises. Dynamic features of complex systems, including their practical lability characteristics, will be discussed on the basis of the underlying reaction kinetics and the pertinent transport conditions. Rates of biomembrane transfer of chemical species will be evaluated in terms of their physicochemical properties, and illustrated by a couple of case studies on metal uptake by organisms. Whole cell metal-responsive biosensors will be discussed in mechanistic detail. Participants are welcome to suggest topical issues that merit attention.

The program is concluded by a session for which participants are invited to present their own research topics within the framework of subjects discussed in the course. The various scheduled sessions are led by a small international team of specialists, including Ronny Blust, Steven Droge, Jérôme F. L. Duval, Herman P. van Leeuwen, Paulo Pinheiro, Jaume Puy, and Raewyn M. Town. As much as possible, the lectures will be of an interactive nature.

The course fee is €565 for PhD students and €715 for postdocs. The fee includes course materials, daily lunches and coffee breaks. In addition, on-site bed and breakfast will cost approximately €128 per night; other accommodation options are available in the vicinity.

Early registration is strongly recommended. To secure a place, send your message of interest to the course director, Prof. Raewyn M. Town at [raewyn.town@uantwerpen.be](mailto:raewyn.town@uantwerpen.be)