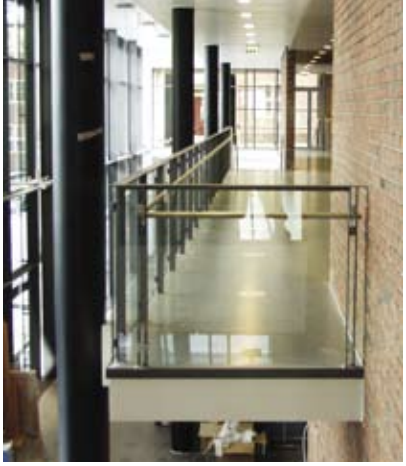
European Master in Radioecology 2008/2009

Norwegian University of Life Sciences






Norwegian University of Life Sciences

Master

Radioecology

Environmental risk from radioactive nuclides

The Isotope Laboratory at UMB, established 1952

Master

Radioecology

Environmental risk from radioactive nuclides

Why Radioecology?

- EU and OECD have identified an urgent need of university trained candidates within nuclear sciences, including radioecology, in Europe and world-wide.
- Radioecology is a key research area linking authorized or accidental releases from nuclear sources to impact and risk assessments and to the radiation protection of man and the environment.
- The establishment of public confidence in nuclear technologies and industries will depend upon the availability of well-educated personnel and independent experts/advisors within the fields of radiochemistry, radioecology and radiation protection.

What can you use this qualification for? The programme provides the competence to a wide range of positions related to authorities responsible for the national legislation and the nuclear energy industry e.g., within ministries, directories, governments, services, development projects, technical support and consultancy, management, environmental protection, as well as within institutions responsible for research and education.

Contents of the programme In a diverse learning process, you will gain knowledge about radioecology; behaviour of radionuclides in the environment, as well as impact and risk assessment based on radiochemistry and radiation protection, the nuclear industry and waste management, project management and research methods.

Skills in these areas are required not only to deal with currently installed nuclear capacity and decommissioned facilities, but also to meet the needs presented by likely new-build nuclear installations. The pressures are facilitated by new improved and safer reactor systems that are being developed in Europe and the USA. Therefore, the need for nuclear competence is probably greater today than was earlier anticipated.

The teaching Your learning will be based on intensive courses, laboratory work, group work, real-life case studies and thematic thesis with interdisciplinary approach, and through reflection on links between real-life situations and theory. To secure that the education is scientifically based, teachers from Europe will contribute with their special competence.

Study program structure The first year provides basic course modules as well as the initiating of the research project; the second year is dedicated to advanced course modules together with data collection and analysis, i.e. finalizing the thesis.
The course modules will be held at UMB and at collaborating European universities. Course modules will be presented by highly competent Norwegian and European teacher

Requirements for application
Bachelor's degree (BSc), a Norwegian "cand. mag." degree, or equivalent education in any field relevant to the environment (e.g. chemistry, ecology, biology, resource management, agriculture, environmental sciences, environmental engineering, geography etc.). Applicants must demonstrate English language ability in accordance with UMB regulations for programmes taught in English.

For more information

- Information about application and general questions about the study:
  Student Information Office,
  P.O. Box 5003, 1432 Aas, Norway
  phone: +47 64 96 59 72 / 73,
  e-mail: opptak@umb.no
- More information about the courses:
  Department of Plant and Environmental Sciences
  P.O. Box 5003, 1432 Aas, Norway
  phone: +47 64 96 55 40
  e-mail: ipm@umb.no
  http://www.umb.no/ipm
- Study Coordinator Ingrid Bugge, phone: +47 64 96 55 25
  e-mail: ingrid.bugge@umb.no
- Scientific contact person: Lindis Skipperud
  phone: +47 64 96 55 46
  e-mail: lindis.skipperud@umb.no
- Project responsible: Professor B. Salbu

Study plan

European Master in Radioecology, course modules and time scedule			
Modules	Course id	Titles of course modules	Year/Semester and time
Research project	M-RAD	Research project + Special syllabus (minimum 5 ECTS)	Year 2/ Autumn and Spring
Module 6	RAD301	Radiation protection and waste management	Year 1/ Febr – May In France
Module 5	RAD300	Risk management and emergency planning	Year 1/ Febr – May In France
Module 4	KJM360	Assessing risk to man and environment	Year 1/ January
Module 3	MINA310	Project Management and Research Methods	Year 1/ Sept – Nov with exam in Dec
Module 2	KJM351	Radioecology -Behaviour of radionuclides in the Environment	Year 1/ Sept – Nov with exam in Dec
Module 1	KJM350	Radiation and radiochemistry	Year 1/ Aug-Sept with exam in Dec

Courses are held in collaboration with Institut de Radioprotection et de Sûreté Nucléaire, France att/ Dr. Cristian Tamponnet and Middlesex University, UK att/Dr. Hemda Garelick and Dr. Huw Jones.

Supported by EU 6th FP ENEN-II project, (Contract No FP6 - 036414).

European Master in Radioecology, Course module information, Master in Radioecology.			
Titles of course modules within Master in Radioecology	Credits	Where Country/Inst.	Course responsible
Research project + Special syllabus (minimum 5 ECTS)	60 5	EU countries	
Mod. 6: Radiation protection and waste management	10	France/IRSN	Dr. Christian Tamponnet
Mod. 5: Risk management and emergency planning	10	France/IRSN	Dr. Christian Tamponnet
Mod. 4: Assessing risk to man and environment	10	Norway/UMB	Prof. Deborah H. Oughton
Mod. 3: Project Management and Research Methods	10	Norway/UMB	Ass. Prof. Lindis Skipperud
Mod. 2: Radioecology -Behaviour of radionuclides in the Environment	10	Norway/UMB	Prof. Brit Salbu
Mod. 1: Radiation and radio-chemistry	10	Norway/UMB	Prof. Brit Salbu

Research project possibilities:

Norwegian University of Life Sciences (UMB) have close collaboration with The University Centre in Svalbard (UNIS).

There are possibilities for fieldwork at Spitsbergen, Svalbard, within the Master in Radioecology.

UNIS is the world's northernmost higher education institution, located in Longyearbyen, Svalbard, at 78° N. UNIS offers courses at the undergraduate, graduate and Ph.D. level within Arctic Biology, Arctic Geology, Arctic Geophysics and Arctic Technology. About 350 students from all over the world take one or more courses every year at UNIS. About half of the students are Norwegian and 50 % are international students and English is the official language at UNIS. UNIS offers also unique possibilities to use the Arctic nature as a laboratory and an arena for field excursions and data collection; forming the basis of the Master research project.

The international setting and the small and intimate campus, make UNIS a unique study destination where students from all over the world get hands-on experience in Arctic studies.

Foto: Nils Petter Dale, UNIS

Course responsible

Dr. Brit Salbu, Professor
Norwegian University of Life Sciences
P.O. Box 5003,
N-1432 Ås, Norway
brit.salbu@umb.no

Dr. Deborah H. Oughton, Professor
Norwegian University of Life Sciences
P.O. Box 5003,
N-1432 Ås, Norway
deborah.oughton@umb.no

Dr. Christian Tamponnet
IRSN/DEI/SECRE
Bat/Bldg 159, C.E. Cadarache
13115 Saint Paul lez Durance, France
christian.tamponnet@irsn.fr

Dr. Lindis Skipperud, Ass. Professor
Norwegian University of Life Sciences
P.O. Box 5003,
N-1432 Ås, Norway
lindis.skipperud@umb.no

Guest lecturers

Dr. Elis Holm, Professor
Jubilee Institute
University of Lund, Sweden
elis.holm@med.lu.se

Dr. Carmel Mothersill, Professor
Senior Canada Research Chair in
Radiobiology
McMaster University
Hamilton, Canada
mothers@univmail.cis.mcmaster.ca

Dr. Hildegarde Vandenhove,
Head Biosphere Impact Studies
Belgian Nuclear Research Centre
Biosphere Impact Studies
Boeretang 200, 2400 Mol, Belgium
hvandenh@sckcen.be

Dr. Tom Hinton, Senior Scientist
Savannah River Ecology Laboratory
University of Georgia
Drawer E, Aiken, SC 29802, USA
thinton@uga.edu

Dr. Peter I. Mitchell, Ass. Professor
University College Dublin
Dublin, Ireland
peter.mitchell@ucd.ie

Dr. Per Strand
Head of Department Emerg. Prep. and Env. Rad.
Norwegian Radiation Protection Authority
P. O. Box 55, N-1332 Østerås, Norway
per.strand@nrpa,no

Dr. Ole-Christian Lind, Ass. Professor
Norwegian University of Life Sciences
P.O. Box 5003,
N-1432 Ås, Norway
ole-christian.lind@umb.no

Dr. Hemda Garelick, Principal Lecturer
School of Health & Social Sciences
Middlesex University
Queensway, Enfield, UK
H.Garelick@mdx.ac.uk

Dr. Huw Jones,
School of Health & Social Sciences
Middlesex University
Queensway, Enfield, UK
h.jones@mdx.ac.uk

Dr. Nicholas Priest,
Radiation Biology and Health Physics
AECL Chalk River Laboratory
Stn 51. Plant Road, Chalk River,
Ontario KoJ 1Po, Canada
priestn@aecl.ca

Dr. Jim Smith
Reader in Environmental Physics
School of Earth & Environmental Sciences Univer-
sity of Portsmouth Burnaby Bldg, Burnaby Road
PORTSMOUTH, PO1 3 QL, UK
jim.smith@port.ac.uk

Cost of living

The following estimated costs are for a single student for one semester of 5 months. We would like to point out that this is a minimum budget.

Accommodation NOK 12,500

Food/household NOK 15,000

Books NOK 4,000

Phone NOK 2,000

Local transport NOK 1,000

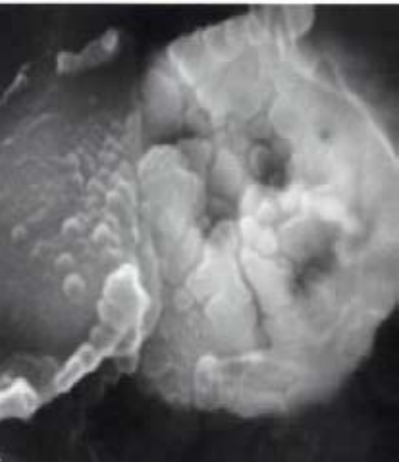
Semester fee NOK 340

Total/semester NOK 34,840

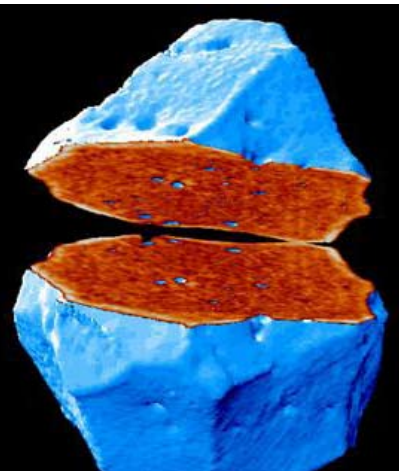
Cost per month NOK 6,968 (~ 871 EURO/month)

Cost in France:
Currently, the average student budget is around 800 € per month outside the Paris area and around 1100 € per month inside Paris.

For more information:
http://www.letudiant.fr/etudes/international/venir-etudier-en-france/coming-to-study-in-france/what-is-the-average-student-budget-.html



- Measuring Uranium and daughter products in a stone from a uranium mining and tailing site in Kyrgyzstan (upper left).
- The medium to low dose Co-60 gamma source at University of Life Sciences, Norway (upper, middle).
- Sampling of fish organs for radionuclide and trace metal analysis (upper, right).
- Radioactive particle from the Chernobyl accident found in Norway (left).
- Synchrotron X-ray microtomography, with computerised slicing, of a radioactive particle from Chernobyl (below, left).
- Water sampling and ”in situ” water fractionation (below, middle).
- Kurday Uranium mining site in Kazakhstan (below, right).



0310
2007

Norwegian University of Life Sciences (UMB), P.O. Box 5003, NO 1432 Aas, e-mail: opptak@umb.no
http://www.umb.no
The Student Information Centre: Phone: +47 64 96 61 00