

# WHY NUCLEAR CHEMISTRY MATTERS

## WHAT IS NUCLEAR CHEMISTRY?

Nuclear and radiochemistry (NRC) is the study of an atom's nucleus and how changes in its structure can lead to radioactivity. Radioactivity refers to the decay of a radioisotope into a different isotope or a different element altogether. NRC includes the understanding of nuclear processes (fission and fusion), the effect of radiation on the environment and living organisms, and how radioactive elements can be utilised in a wide range of applications in research and industry.

## WHO IS TEACHING NRC?

In Europe, NRC at the MSc level is typically taught as separate courses as part of other educational programmes.

Major topics include:

- General and applied NRC
- Environmental radiochemistry and radioecology
- Radiopharmaceutical chemistry
- Nuclear energy and materials
- Analytical radiochemistry
- Actinide chemistry

MSc programmes are limited, but are currently offered by:

University	Degree (specialisation)
University of Sofia	MSc in Nuclear Chemistry
Czech Technical University	MSc in Nuclear Chemical Engineering (Applied Nuclear Chemistry)
Chalmers University of Technology	MSc in Nuclear Engineering (Nuclear Chemistry) MSc in Chemistry and Biosciences (Nuclear Chemistry)
Charles University	MSc in Chemistry (Nuclear Chemistry)
University of Oslo	MSc in Chemistry (Nuclear Chemistry)
University of Helsinki	MSc in Chemistry (Radiochemistry)
Norwegian University of Life Sciences	MSc in Chemistry (Radiochemistry)

## NRC EUROMASTER

The CINCH-II project aims to develop and implement the plan for a European master's degree. The NRC EuroMaster label is granted by the Nuclear and Radiochemistry Division of the European Association for Chemical and Molecular Sciences (EuCheMS NRC Division).

<http://cinch-project.eu/>



## NRC TO AN EMPLOYER

NRC MSc courses and programmes are a source of highly qualified professionals for future employers.

NRC postgraduates are capable of taking leading positions within an organisation. They typically have the following highly-desirable skills:

- Complex problem solving
- Laboratory and computer modelling experience
- Mathematical and statistical ability
- Strong oral and written communication
- Analytical and critical thinking
- Data collection and interpretation

Current employers include:

- National laboratories and research organisations
- Nuclear contractors, regulators and site operators
- Medical facilities
- Academia
- Defence and security
- Environmental agencies
- Governing bodies

Benefits to an employer include:

- An individual with the skill-set of a chemist with background knowledge and skills in NRC, which reduces the requirement for training.
- An employee who is able to work with colleagues from multiple disciplines.
- A worker with experience in collaboration and teamwork.

QUOTATION