Join Radboud Summer School 2018!

Personalized Medicine 101

change perspective

Radboud University
Personalized Medicine 101

Personalized or precision medicine relies on tailor-made diagnoses and treatments for patients, based on the differences among the molecular background of individuals. This challenging medical area needs the specific training of professionals for the detailed knowledge about genomic structure and dynamics and advanced molecular biology techniques. Personalized Medicine 101 intends to be a fundamental platform for understanding the basis and applications of Molecular Biology to the medical field.

The course will cover the following modules:

- **Human genome structure and dynamics.** Coding and non-coding genome and transcriptome. Techniques and databases for genome analysis. The main objectives of this module are the description of the human genomic structure and the consequences of the dynamic output of genomic information in the context of cell biology and human disease.

- **Human genetic variation and pathological consequences.** Concepts of pathological and neutral genomic variations. Practical examples and general databases (SNP and Clinvar). The main objectives of this module are to understand the natural and pathological human genomic variation and how to explore these variants in clinical applications.

- **Genome Wide Association Studies (GWAS) and their applications to clinics.** The main goal of this module is to understand the GWAS methods, their strengths and weaknesses and its clinical applications.

- **Basics on Pharmacogenomics and Pharmacogenetics: practical clinical cases.** The proposed objectives of this module are to use the rules of genetics to design a personalized protocol for diagnosis, prognosis and treatment of human diseases.

- **Advanced therapeutics.** This module will include the detailed description of RNA-based therapeutics and genome editing techniques. The main goals of this module are to give a glimpse on how new medical strategies can benefit the treatment of genetic and rare diseases.

- **Computer Aided Drug Design (CADD).** This module will cover the techniques and strategies devoted to the structural characterization of biomolecules for medical purposes, including the detailed description of X-ray crystallography and cryo-electron
microscopy methods within the context of rational drug design. The objectives of the module are to familiarize the students with the structure of macromolecules and how to exploit it for the design of more effective drugs.

**For whom is this course designed**
biomedical students, who are willing to apply the methodology of personalized medicine into their clinical practice, but also for those interested in understanding the most advanced techniques and protocols for rational drug design and therapeutics

**After this course you are able to:**
- Understand the complex human genomic structure, either at the static or the dynamic level; the rational drug-design methods and applications; the concepts of Pharmacogenomics and Pharmacogenetics and their practical applications to clinics and the molecular basis for advanced therapeutic strategies (RNA-based therapeutics and genome editing techniques)
- Translate the human genomic context into specific diagnosis and treatment for a particular disease
- Utilize specialized databases for the retrieval of genomic data

**Admission documents**
Motivation letter and CV

**Number of EC**
2 ECTS credits
Want to be part of the RSS experience?

**Entry level**
Master, PhD and Post-doc

**Dates**
Monday 6 August – Friday 10 August 2018

**Course fee**
€600

**Discounts**
- 10% discount for early bird applicants. The early bird deadline is 1 April 2018.
- 15% discount for students and PhD candidates from partner universities.

**Deadline application**
1 June 2018

**More than just a course!**
Radboud Summer School is more than an academic event. You also have the opportunity to sign up for our exciting social programme.

**Contact**
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Register now!

www.ru.nl/radboudsummerschool, 5-17 August 2018