



Doctoral Course in Bioinformatics and Population Genomics, May 18-20, 2016

Place	University of Oulu, Linnanmaa Campus, rooms TBA
Contact	Prof. Outi Savolainen and Dr. Nader Aryamanesh, firstname.lastname@oulu.fi
Credits	2 ECTS (+ Initial pre-course training module on May 16-17: 0.5 ECTS – more information below)
Organizers	Biocenter Oulu Doctoral Programme (BCO-DP) , Research Unit of Genetics and Physiology, and Population and Statistical Genomics consortium PopStatGen
Registration	By April 30, 2016, to nader.aryamanesh@oulu.fi. The number of participants is limited to 20. Please note that you need to have some basic skills to be able to follow the course. Upon registration, please indicate if you participate also in the pre-course background training module in May 16-17 to get the relevant background training (see prerequisites and details below).

Goal of the course: To provide basic understanding for genomic analysis using next generation sequencing data, specifically for RNA-Seq and population genomics.

Prerequisites: Preferably familiarity with UNIX, basic bioinformatics and basic population genetics. For those who are not yet familiar with the basics, the local teachers will organize an additional training module immediately prior to the course on May 16-17, to bring all students to more similar starting levels. The pre-course background training module includes the following afternoon sessions:

- May 16 at 12-17 - Basics of Unix, Lecture and practical given by Jaakko Tyrmi & Nader Aryamanesh, and
- May 17 at 12-17 - Next gen, short project presentations given by the participants, and introduction of the Illumina NGS platform in Biocenter Oulu Sequencing Center

Content and structure: The course in May 18-20 includes pre-course readings, lectures, computer practicals and a brief report on the practicals.

Visiting teachers:

- Simon Anders, PhD, Institute for Molecular Medicine Finland (FIMM), University of Helsinki
- Mikkel Schierup, professor, Bioinformatics Research Centre (BiRC), Aarhus University, Denmark
- Anders Albrechtsen, PhD, Bioinformatics Centre, University of Copenhagen, Denmark
- Virpi Ahola, PhD, Department of Biosciences, University of Helsinki

Local teachers, University of Oulu:

- Jaakko Tyrmi, MSc
- Nader Aryamanesh, PhD
- Lumi Viljakainen, PhD
- Tiina Mattila, MSc
- Phillip Watts, PhD

PROGRAMME OUTLINE:**Wednesday, May 18**

- 8-11 – Lecture: RNA Seq analysis– Simon Anders
- 12-17 – RNA-Seq practicals – Simon Anders and Lumi Viljakainen

Thursday, May 19

- 8-11 – Lecture: DNA & population genomics - Mikkel Schierup
- 12-15 – Learning to use populations genomics software ANGSD –Anders Albrechtsen
 - Start of the ANGSD practical (to be continued next day)
- 15-16 – Biocenter Oulu seminar: Evolution of the X chromosome and speciation in humans and other great apes - Mikkel Schierup. Place: Medical campus, lecture hall A101 (anatomy), Aapistie 7A

Friday, May 20

- 8-11 – DNA & population genomics practicals
- 12-17 – Lecture: Lessons from assembling an insect genome – Virpi Ahola
 - ANGSD practical continues
 - Other examples
 - Closing

Organising committee:

- Prof. Outi Savolainen (BCO, PopStatGen, Evoltree, GenFys)
- Dr. Nader Aryamanesh (PopStatGen)
- Dr. Lumi Viljakainen (GenFys)
- Dr. Tanja Pyhäjärvi (BCO, GenFys)
- Dr. Phillip Watts (Ecol)