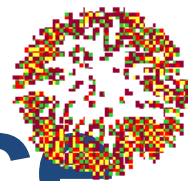


FOS course

Molecular Data Science





Data drive the modern life sciences

“Tomorrow’s discoveries will be made by today’s early-career researchers. ... We also hope to be guided by them, so that we can meet their needs when it comes to publishing their work, as research becomes more data-rich and computationally heavy.”



Magdalena Skipper,
Editor-in-Chief Nature

Many discoveries remain

Our human DNA is uncharted territory

Many discoveries remain

Our human DNA is uncharted territory

- Dedicated paper on 5400 genes.
- 90% of papers just on 2,000 genes.
- 2015: 50% of research devoted on 3,000 genes known by 1991

Who

Tutors

- Ingrid Meulenbelt & Bas Heijmans (coordinators)
- 12 others

You

The course

GitHub page

- <https://github.com/molepi/Molecular-Data-Science>
- Week 1+2: learning by doing.
- Week 3: apply knowledge to develop project proposal in molecular data science.

Knowledge and understanding

- Knows how large-scale molecular data can inform on mechanisms and risk of common diseases.
- Has insight in modern data analysis methods used to discover molecular signatures of disease phenotypes in genetic, epigenetic, gene expression, and metabolomics data sets.

Applying knowledge and understanding

- Get hands-on experience in the analysis and interpretation of genetic, epigenetic, gene expression, and metabolomics data sets.
- Shows the ability to develop new researcher project in the field of ageing using molecular data science including background, hypothesis, pilot data, objectives, study design, work plan, and expected outcomes (e.g. causality).
- Can perform analyses to generate pilot data in order to critically appraise and, if necessary, reformulate a hypothesis.

Communication

- Shows communication skills to clearly and convincingly present and defend a research proposal.
- Is able to respond constructively to questions/feedback and connecting this feedback to his/her own position regarding his/her own research and in doing so showing an open, self-critical yet firm and self-confident attitude.

Learning skills

- Shows professional conduct: being critical yet constructive and eager to improve oneself and in doing so contributes to the learning process of the other students.
- Critically and constructively discusses research proposals of peers.

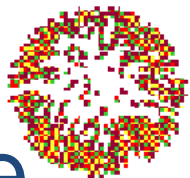
Assessment

1. Handing in assignments. Individually assessed (0%, P/F).
2. Contribute to interim evaluation of student participation and development during workgroups (0%).
3. Fill out project proposal form (preparation reflective assignment) (0%).
4. Presentation project proposal (background, hypothesis, pilot data, objectives, study design, workplan, expected outcomes). (Assessed in duos, 45%).
5. Active and critical participation during discussion after project presentations of peers (15%).
6. Reflective assignment that shows mastering key aspects of development of research proposal in molecular data science and addressing points raised during peer review (40%).

Evaluation

Who will it be?

FOS course



Molecular Data Science

