

| Course description                      |                           |
|---|---------------------------|
| <b>Course</b>                           | Genomics Practicum        |
| <b>Department</b>                       | Centre for Bioinformatics |
| <b>Language</b>                         | English                   |
| <b>Nature</b>                           | Optional                  |
| <b>Year/semester</b>                    | 1st year, spring-term     |
| <b>Credits (ECTS)</b>                   |                           |
| <b>Lectures (hour/semester)</b>         |                           |
| <b>Plenary lectures (hour/semester)</b> | 0                         |
| <b>Practicals (hour/semester)</b>       | 30                        |
| <b>Responsible teacher</b>              | Dr. Solymosi Norbert      |
| <b>Teacher(s)</b>                       | Dr. Solymosi Norbert      |
| <b>Prerequisites</b>                    |                           |

**Learning outcome** (include skills and competencies, if any)

The student will get experience in genomic data analyses are performed more frequently in vet researches.

**Outcome assessment**

The student will compile and run a jupyter notebook for a given analytical purpose. The results will be reported.

**Weekly schedule of lectures and practicals**

| <b>WEEK</b> | <b>Practical topics</b>                                       |
|-------------|---|
| Week 1      | Linux, Bash and Jupyter introduction                          |
| Week 2      | NGS data handling, quality assessment, filtering and trimming |
| Week 3      | short read alignment  |
| Week 4      | variant call  |
| Week 5      | de novo assembly  |
| Week 6      | quasi species   |
| Week 7      | metagenomics I  |
| Week 8      | metagenomics II   |
| Week 9      | metagenomics III  |
| Week 10     | resistome I   |
| Week 11     | resistome II  |
| Week 12     | gene expression studies, microarray                           |
| Week 13     | gene expression studies, RNA-seq I                            |
| Week 14     | gene expression studies, RNA-seq II                           |
| Week 15     | gene expression studies, RNA-seq III                          |

**Recommended literature**

<https://www.biostarhandbook.com/>

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| <b>Note(s)</b> |
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