BIOENG-511  Lab methods: animal experimentation
Doenlen Raphaël, Warot Xavier

**Cursus**

<table>
<thead>
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<th>Cursus</th>
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<tr>
<td>Bioingénierie</td>
<td>MA1, MA3</td>
<td>Opt.</td>
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<tr>
<td>Ingénierie des sciences du vivant</td>
<td>MA1, MA3</td>
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<td>Sciences du vivant</td>
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**Language**  English

**Credits**  2

**Withdrawal**  Unauthorized

**Session**  Winter

**Semester**  Fall

**Exam**  During the semester

**Workload**  60h

**Weeks**  14

**Hours**  2 weekly

**Practical work**  2 weekly

**Number of positions**  20

**Remarque**

Registration with letter of interest and short CV with Xavier Warot and Raphael Doenlen. Attendance to the course is mandatory. A minimum of 8 participants is required.

**Summary**

Theoretical introduction to the ethics and principles of animal experimentation in the context of the animal models (laboratory mouse, laboratory, rat, zebrafish) used at EPFL.

**Content**

- Ethical framework
- Swiss legal requirements of animal experimentation
- Introduction to animal models: biology, genetic engineering
- Introduction to arguments and to methods of *in vivo* studies
- Logistics, housing and care of laboratory animals: husbandry, breeding, health monitoring

**Keywords**

Animal model, Animal experimentation, Laboratory animals, Husbandry, Genetic engineering, Phenotyping, Ethics

**Learning Prerequisites**

Important concepts to start the course

**Learning Outcomes**

By the end of the course, the student must be able to:

- Develop a model for human disease
- Interpret *in vivo* experiments
- Design an animal experiment
- Propose measures to keep a good sanitary status of an animal facility
- Elaborate a breeding strategy for generating experimental and control animals
• Plan a transgenic experiment
• Describe the set-up of an animal house
• Implement ethical principles when performing and planning animal experimentation
• Develop a laboratory animal model for scientific research

Transversal skills
• Respect relevant legal guidelines and ethical codes for the profession.
• Respect the rules of the institution in which you are working.
• Summarize an article or a technical report.
• Give feedback (critique) in an appropriate fashion.
• Make an oral presentation.
• Demonstrate the capacity for critical thinking

Teaching methods
• Theoretical courses
• Discussion in small groups on a given issue and presentation of the solution envisioned
• Scientific articles analysis and presentation
• Visits of the different facilities of the EPFL

This course will take place from November 12th to November 15th and on November 21st with an examination on November 22nd, 2019.

Expected student activities
• Attendance to the courses (mandatory)
• Attendance to the visits of the facilities
• Analysis and presentation of a scientific article about in vivo experimentation

Assessment methods
• Written examination at the end of the course
• Oral presentation of a scientific article

Supervision
Office hours    
No