

- Faculté des sciences
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Plant domestication and breeding (3BL2307)

Filières concernées	Nombre d'heures	Validation	Crédits ECTS
Master en biologie	Cours: 28 pg	Voir ci-dessous	3

ph=période hebdomadaire, pg=période globale, j=jour, dj=demi-jour, h=heure, min=minute

Période d'enseignement:

- Semestre Printemps

Equipe enseignante

Lothar Kalmbach

Contenu

This course gives an introduction into the domestication of plants, means of plant breeding, historical and modern traits that are desired in crops, and current and future challenges to plant agricultural production and human nutrition. The course will further introduce and discuss classical and molecular genetic mechanisms that underlie variation and enable generation of novel varieties to adapt crop production to a changing environment. The course should provide students with a basic knowledge on modern crops, traits of domestication, principles of genetic analysis, and classical and modern means for genetic manipulation to breed for new species. The course will further familiarize participants with critically reading scientific literature and conceptualizing a research program.

Forme de l'évaluation

Continuous Assessment during the course (CA graded):

- 1- Students are expected to actively participate during lessons and paper discussions.
- 2- During the course, students identify a specific challenge for cultivation of an existing crop, identify possible approaches to mitigate, and discuss challenges and limits to such a breeding program. Their work will be presented in one of two forms:
 - a. As a text of maximum 3 pages written in English
 - b. As a short presentation, followed by a discussion in the group.

Modalités de rattrapage

If the final mark is insufficient and results in a failure, the student will have to design a research project on a topic suggested by the professor and write a summary including the state-of-the-art, aims and proposed methods. The written summary should be handed in two weeks before the official start of the exam session for which a second attempt is made. In addition, the student will pass an oral exam of 15 minutes scheduled during the exam session. A failure to hand in the report or an unjustified absence from the oral exam constitutes a second and definite failure of the course.

Documentation

Slides, articles and other documentation will be made available through Moodle during the course.

Pré-requis

Basic knowledge of plant physiology and development and basic knowledge of genetics (bachelor level).

Forme de l'enseignement

This course includes lectures, interactive class activities and discussion of scientific articles.

Objectifs d'apprentissage

Au terme de la formation l'étudiant-e doit être capable de :

- Analyse the content of research articles
- Practice scientific literature search
- Describe the history and principles of plant domestication
- Conceptualise a research plan on a topic related to plant breeding and/or applied plant genetics
- Identify current topics and challenges for plant breeding
- Outline the genetic and molecular principles that determine biological traits

Compétences transférables

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- Present effectively to peers
- Evaluate scientific literature
- Design and develop a project idea
- Summarize knowledge