

# UE Evolution & Development of Eukaryotes



- > **Langue(s) d'enseignement:** Anglais
- > **Ouvert aux étudiants en échange:** Oui
- > **Code d'export Apogée:** YAX9BI18

## Présentation

### Description

#### Course outline

The main theme of this course is centred on how regulatory networks and specific patterns of gene expression shape development and have evolved in animal and plant kingdoms.

On the animal side, you will hear about basic concepts of early evolution of metazoan development and body plans in Arthropods, we will analyse the role of neural crest in vertebrate segmentation and head patterning, and discuss developmental mechanisms of evolutionary change.

On the Plant front, developmental genetics of plant speciation, evolution of flower development, and molecular mechanisms generating flower diversity and underlying plant domestication will be the major topics.

Overall, this Evo-Devo course will give an overview, through the examples of various developmental models, of how shaping/reshaping of genes and genomes drove the diversity represented along the tree of life and conducted to present-day organisms living on earth.

The teaching team consists of local, national and international specialists in their field who will present the topics they are passionate about.

## UE BIO531V: « EVO-DEVO » EVOLUTION AND DEVELOPMENT OF EUKARYOTES

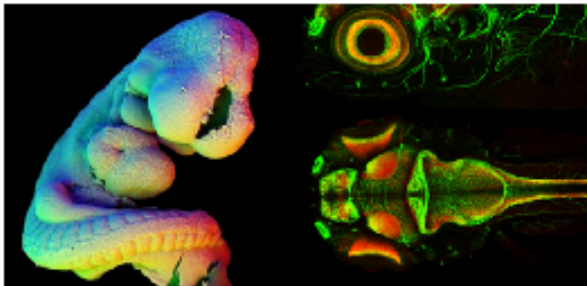
### *A view of Evo-Devo from a great variety of model systems*

Molecular Basis of Placodes Development  
 The Mysterious Origin of the Flowering Plants  
 Next generation study of plant-pollinator interactions  
 Evolutionary Dynamics of Zygote Genes Activation  
 Male genome reprogramming  
 Plant and Animal Genome Plasticity in Evolution  
 The Phylogeny of Chloroplasts  
 Retrograde signalling networks in eukaryotes  
 Evolution and Domestication

### **Teaching team**

Local Professors & Researchers  
 IAB, BIG

Invitees  
 UK, Spain, ENS Lyon,  
 INRA Clermont-Ferrand



## Heures d'enseignement

CM	CM	22,5h
UE Evolution and development of Eukaryotes - TD	TD	18h

## Pré-requis recommandés

### Pre-requisites:

Master in Biology 1<sup>st</sup> year (UGA Grenoble) or equivalent world-wide

The Evo-Devo course requires general knowledge in development and body plan organization as well as in regulatory mechanisms of gene expression. For UGA students, it relies on knowledge acquired in the following L3 courses: Development, Plant

Developmental Biology, Molecular Basis of Gene Expression; and M1 courses: Molecular Genetics and Epigenetics and Development and Differentiation.

**Période :** Semestre 9

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## Compétences visées

### Targeted skills:

After this module, the students should be able to:

- Recapitulate the main innovations that drove developmental patterning in both the animal and plant kingdoms, as illustrated through models described in the lectures;
- Describe some important networks/key factors (genetic and epigenetic) involved in development and evolution;
- Explain an experimental strategy used in a scientific study, analyze results and conclude from them on the key discoveries;
- Be critical about questions addressed by a study, as well as approaches, in link with the state-of-the art;
- Be able to propose experimental strategies to answer questions related to development and evolution.

## Infos pratiques

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### Contacts

Responsable pédagogique

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### Lieu(x) ville

› Grenoble

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### Campus

› Grenoble - Domaine universitaire