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## In memoriam

**Isabelle Olivieri (1957-2016)**



Isabelle Olivieri, Professor at the Faculty of Sciences (Université de Montpellier), with a long career in evolutionary biology, evolution of dispersal, and experimental evolution, was the first MEME coordinator in Montpellier; without her MEME would have not existed in Montpellier. MEME was very dear to Isabelle. You can read more about Isabelle by either visiting her [Wikipedia page](#) or reading the obituaries published in [Mediapart](#), [Evolutionary Applications](#) or the [Journal of Evolutionary Biology](#). You may also consult [videos](#) (in French) from a symposium in her memory.

# 1. People to contact

## Local MEME coordinators

All correspondence should be addressed to both

**Céline Devaux** (Céline) [celine.devaux@umontpellier.fr](mailto:celine.devaux@umontpellier.fr)

**Frédérique Viard** (Frédérique) [frederique.viard@umontpellier.fr](mailto:frederique.viard@umontpellier.fr)

Both work at the ISEM (Institute of Evolutionary Sciences of Montpellier – Institut des Sciences de l'Évolution de Montpellier); see their respective web pages:

<https://isem-evolution.fr/en/membre/devaux/>

My main research projects combine modelling, experiment and observations in natural populations to better understand reproductive strategies of entomophilous plant populations and species: specifically, I study the effects of pollinators and climate change on morphological and phenological traits, and selfing rates; this approach, firmly embedded into quantitative genetics, allows integrate details about the genetic architecture of floral traits and multivariate selection. Because of my recent studies on *Noccaea caerulea*, a species that can grow on soil polluted by heavy metals and pollinated by generalist pollinators, I am starting new projects on the effects of heavy metals on plant-pollinator networks (using deep-learning) and on selfing rates at a very fine spatial scale. My other projects deal with sympatric speciation in palm trees and laterality in leaf-cutting ants.

I teach statistics for biologists at all levels at the University of Montpellier, including the Master MEME. I sporadically teach fundamentals of quantitative genetics to master students.

<https://isem-evolution.fr/en/membre/viard/>

My research is at the interface between ecology and evolutionary biology, with a focus on coastal marine species, in natural and artificial habitats (e.g. harbours). Dispersal processes and biological introductions are at the heart of this research (e.g. eco-evolutionary interactions between introduced and resident species). They combine field observations, ex- and in-situ experiments and molecular analyses (e.g. population genomics, environmental DNA analyses). Ascidians, in which many introduced species are found, notably in port habitats, are among my favourite case studies. Both witnesses and actors of contemporary environmental changes, introduced species are models for addressing fundamental research questions but also of paramount importance when addressing marine biodiversity conservation issues; my research thus leads me to develop applied studies (e.g. development of monitoring tools) and an expertise activity for national or international bodies (e.g. ICES WG ITMO/BOSV).

## Coordinators of all Biology, Ecology and Evolution master programs (including the MEME)

Dr. Céline Devaux

[celine.devaux@umontpellier.fr](mailto:celine.devaux@umontpellier.fr)

Dr. Emmanuel Douzery

[emmanuel.douzery@umontpellier.fr](mailto:emmanuel.douzery@umontpellier.fr)

## 2. Important dates

M1S8 (1<sup>st</sup> year 2<sup>nd</sup> semester, previously M1S2) students start courses early February, and leave Montpellier at the end of June, after completing an internship from early April to late June; note these dates are not flexible.

M2S9 (2<sup>nd</sup> year 1<sup>st</sup> semester, previously M2S1) students usually start their projects early September and finish late February, while M2S10 (2<sup>nd</sup> year 2<sup>nd</sup> semester, previously M2S2) students usually start their project late February and can finish late August. These dates are flexible as long as the internship lasts for at least ~6 months.

Main events along with dates are summarized below, and details are provided in the last sections presenting requirements for research projects.

	<b>M1S8</b>	<b>M2S9</b>	<b>M2S10</b>
contact coordinators*	November	June	November
start registration*	mid-November	mid-June	mid-November
submit project proposal*	February	mid-June	mid-November
establish work agreement*	Early March	Late June	Early December
start project	Early April	Early September	As early as February
submit short report	Late April	Early October	Early February or March
submit project	10 days before end of June	10 days before end of February	10 days before end of August
defend Project and leave Montpellier	End of June	End of February	Late August

\* at the latest

## 3. Preparing your arrival

### Get registered

The Groningen MEME management office will email a list of students interested in coming to Montpellier for any semester (S8=M1S2, S9=M2S3 or S10=M2S4); shortly after, these students will receive from “the International Bureau – Incoming Mobility” (in French: “*Relations Internationales - Mobilité entrante*”) a letter of admission and a registration “package”. The admission letter helps get a visa and/or residence permit, and also provides information about housing at the university residencies (see dedicated section), and enroll in courses of French. Students who do not receive the email and admission letter must quickly contact Céline.

For new students at the University (e.g. M1S8 = 1<sup>st</sup> year 2<sup>nd</sup> semester, Mrs Luce Cardenas ([luce.cardenas@umontpellier.fr](mailto:luce.cardenas@umontpellier.fr)) is responsible for the letter of admission and the registration process, and will CC Céline once registration is completed. Students have to email Luce as soon as possible with all the documents required to get what is called an IA registration. Then, Mrs Séverine Alarcon ([severine.alarcon@umontpellier.fr](mailto:severine.alarcon@umontpellier.fr)) will proceed, whenever necessary, to your registration to the MEME program and associated courses (you do not have anything to do for this so called IP registration).

Once all this is accomplished, you will get a “School certificate” from “the International Bureau – Incoming Mobility” that gives your **student number** (N° Etudiant) and your **institutional email** (@ etu-montpellier.fr); these will be **necessary** for (i) getting information about courses, (ii) completing the work agreement for your internship (see ‘Convention de stage’), and (iii) getting information about the university, library, conferences, and many other tools (team office)....

**Please connect as soon as possible to the following website to have access to all these information:**

<https://cas.umontpellier.fr/cas/login?service=https%3A%2F%2Fent.umontpellier.fr%2FuPortal%2FLogin>

See also the University website for more general information

<https://www.umontpellier.fr/en/>

### **(No) Fees for registration or social security**

Student should not pay any registration fee, because fees are paid by the MEME program to the Montpellier University. Students should have a valid insurance, including liability, either provided by MEME or their own. A student may want to enroll in the French social security, depending on health needs, as the coverage provided can be better than the Erasmus Mundus insurance for some medical acts (eg. contraception is free in France). Social security is free for international students younger than 29 years old; see the following web page to register and ask Luce Cardenas for tutos in English

<https://www.ameli.fr/herault/assure/droits-demarches/etudes-stages/etudiant/french-social-security-registration-process-foreign-students>

### **Apply for a residence permit or visa**

This application most probably concerns only a few students, as all students should now have a 2 years visa from the MEME program.

Students can ask for a visa with the letter of admission and a letter stating they will have a place to live (including the address). Please ask Luce Cardenas, CC Céline, for more information. In most cases, students will obtain a VISA “D” long séjour étudiant (CESEDA R311-3 6°).

If you read French, more information can be found here:

<https://languedoc-roussillon-universites.fr/saiec/visas-et-titres-de-sejour>

### **Get a place to live**

#### **University housing**

The university provides housing, through the housing center “**CROUS**”. CROUS rooms are cheap, minimally furnished, vary in size, and are located in different parts of town. Please find here prices and locations for several options (in French!, but can be easily understood)

<https://www.crous-montpellier.fr/wp-content/uploads/sites/20/2017/03/Tarifs-non-conventionnSospour-com-01-01-2020.pdf>

Students can find more information on the different housing options in the MEME Wiki, students’ experiences and advice. Recall that information about how to enroll in such a housing is in the email for registration from Luce Cardenas. If you are interested in getting housing through the University, you should act quickly.

To move out of the University residencies, you must schedule an appointment with the cleaning lady/man (“femme/homme de ménage”) to do an inventory (“état des lieux”). Make sure to clean your room! And please schedule this appointment well in advance (at least 1 week before you leave). You will fill in again the same copy as the one you received when you moved in (and on which everything was noted down).

Students staying during the summer (July and August) may have to change rooms during the summer, as some buildings within residencies are closed. If the administration of your housing through the University makes it difficult for you to rent a room in August, or makes it difficult for you for any reason, please contact as soon as possible Céline.

## **Housing outside the university residencies**

You can try to rent a flat or house or get room-mates outside the University residencies. Beware that this may not be easy because many owners ask for “guarantees”: the name of someone who owns a house or flat or has a good salary and who certifies to pay your rent in case you cannot. As for housing within the university residencies, you will have to complete an inventory when you move in and when you move out.

Check with previous students, who managed to rent a flat or house in Montpellier; check with French students, who have tricks to find available rooms, check with your supervisors as sometimes researchers offer rooms to students in some institutes, and check some dedicated websites (e.g. “le bon coin”, “la carte de colocs”,...).

## **Required papers for any housing**

In France you need a housing insurance for any kind of housing, including the university residencies. This is relatively cheap, and is purchased from insurance brokers. Do not forget to cancel this home insurance when you leave: a registered (certified) letter (“lettre recommandée”) without a delivery receipt (sans avis de réception) should be mailed to resign.

## **Getting financial help for housing**

Independently of your housing choice, you can get funding from the the CAF (Caisse d’Allocations familiale) to help you pay your rent. If you are from outside the Schengen zone, you need to apply for a visa longer than six months: “**visa long séjour**”. Many students who study abroad for six months within the year, will be given a visa that does not allow to get funds from the CAF as it will say “Dispense temporaire de carte de séjour”.

If you get the “visa long séjour” , this visa should be placed on an empty page in your passport, along with the OFII sticker. When you arrive in Montpellier (or any other city) by plane or train, find the customs (“douane”) and have them **stamp your passport with your date of entry in France**. This is a little tricky if you arrive from a destination within Europe, as custom will not necessarily be checking passports; you have to state that this is necessary for the OFII sticker (immigration). Then **within ten days** you will have to fill in and send the OFII form, along with a photocopy of your passport and visa at the time of your visa application, to get a stamp from your Consulate on it. The OFII will get back to you with an appointment date ~3 months in the future and they will scan your lungs for tuberculosis and then give you the necessary full-page sticker in the passport: that gives you the right to get the CAF ! It is best to apply for the CAF as soon as possible, event if your file is not complete and you don’t have your OFII sticker, because the CAF will help you pay the rent starting from the day it receives your application.

See here for more information at <https://www.caf.fr/>

- 1 [Accueil](#)
- 2 [Mes services en ligne](#)
- 3 [Faire une demande de prestation](#)
- 4 [Demander l'aide au logement](#)

## **Bank accounts**

Students will have a work contract with the research institute they will work in. In France, internships are paid (see ‘Convention de Stage’) and therefore students must provide an IBAN from their bank account (in France or abroad). Having a bank account could also be easier to pay the rent, and get funding from the CAF for renting a flat or house.



## 4. “life”

### At the University of Montpellier

Here are links to Student clubs at the Faculté des Sciences de Montpellier:

<https://www.umontpellier.fr/campus/vie-associative>

for example:

<https://www.umontpellier.fr/campus/associations/abm-association-de-biologie-de-montpellier>

<https://www.umontpellier.fr/campus/associations/bureau-des-etudiants-en-sciences-de-montpellier>

<https://www.umontpellier.fr/campus/associations/hello-world>

<https://www.umontpellier.fr/campus/associations/association-des-master-en-biologie-des-plantes-montpellier-ambpm>

Here are some links to get an appointment with a physician, a nurse or a therapist

<https://www.umontpellier.fr/articles/les-consultations-psychologiques-accessibles-tout-lete>

<https://www.umontpellier.fr/articles/le-centre-de-soins-universitaire-au-rendez-vous>

You can alternatively email at the address: [centredesoins@umontpellier.fr](mailto:centredesoins@umontpellier.fr)

### Here is a map of the campus in which you will study (named Triolet)

<https://sciences.edu.umontpellier.fr/plan-du-campus-triolet/>

Most of the courses will take place in building 36; Céline’s office is 2<sup>nd</sup> floor in building 22 and Frédérique’s office is 1<sup>st</sup> floor in building 24.

Please note that it is possible to get a grant from the University for students who do not have already a grant from the MEME to perform a research project at LMU with which the U. Montpellier has an agreement. Please inform Céline or Frédérique if you wish to do so.

### In the city of Montpellier

As students will notice, a lot of things (websites, banks, administration...) are in French, but in the end, everybody manages perfectly well! MEME students will find on the wiki page how to deal with this. If you find that the procedure has changed from what is presented on the wiki page and here, please tell us, so that we can amend this information and others can benefit from your experience. On the wiki, MEME students will find information on French legislation that concerns them, bikes, cars, shopping (supermarkets, farmers’ markets), mobile phones, banking, learning French, going out (pubs, restaurants, movie theaters, theaters, beach, hikes...), French transportation, culture, museums....

Biking in Montpellier is easy, and many places offer free help to repair bikes (e.g. le vieux biclou).

Here is the web page of the public transportation within the city:

<https://www.tam-voyages.com/index.asp>

And here is the web page of the public transportation outside the city (to hike, bike, ski, canoe...)

<https://www.herault-transport.fr/>

## Student's life

### Student representatives

Student representatives, who are in charge of representing students, must be locally elected for each of the three semesters, this will be done one week after all students start courses or research projects, and this will be done by an anonymous vote from a list of volunteers.

### Information

There is one welcoming day in September, and one in February for the MEME students. These days include a brief presentation of the university, of the local MEME coordinators and the MEME lecturers.

All students should subscribe to evolmontp (Montpellier Evolutionary Biologists network) and potentially evolfrance (French Evolutionary Biologists network) to get information on seminars, internships and Phd positions, from the Evolutionary Biologist community:

Email [sympa@umontpellier.fr](mailto:sympa@umontpellier.fr) to subscribe to evolmontp, with only the following text (no subject):

**SUB evolmontp Your\_first\_name Your\_last\_name**

Email [sympa@umontpellier.fr](mailto:sympa@umontpellier.fr) to subscribe to evolfrance, with only the following text (no subject):

**SUB evolfrance Your\_first\_name Your\_last\_name**

## 5. Lectures, schedule, and evaluation

For practical reasons, lectures at the university cannot be set up for fewer than 6 students. **M1S8 students must attend all courses**; note that other young researchers (French or international PhD or post-docs) can attend the same courses. Please be responsible, e.g. arrive on time, and truly interact with the lecturer (do not play with your phone -;). As in any other university 1 ECTS holds for about ~20 hours of work, including course, individual/ group work and assignment. Note also that you should attend (physically or online) to the Friday weekly seminars at 11h30. Conferences are all English (no excuse) and sometimes with “famous” people; please read information here:

<https://www.labex-cemeb.org/fr/recherche/louis-thaler-lectures>

<https://www.labex-cemeb.org/fr/recherche/seminaires-en-ecologie-et-evolution-de-montpellier-seem>

M1 lectures represent 15 ECTS, the other 15 ECTS being based on the project (i.e. the internship from April to June). Below codes for the lectures are useful to get information for the Moodle website (ENT).

As a M1 or M2 student, you can enroll in French class; recall this is done at the same time as the registration. Students are grouped by levels, and hence mixed with other students. M2 S8 students usually arrive too late to take these courses...

As a M2S9 student, you can also enroll in courses from the Master program of Biology, Ecology and Evolution, if your French is good enough (note that in the future some courses should be also given in English); please read information here:

<https://biologie-ecologie.com/unites-enseignement-master-b2e/>

A typical week could be the following, alternating theoretical lectures with less intense lectures; this schedule has been organized like this, after discussing with previous MEME students who wanted to have more “free” time to work on the group projects and assignments. You are “free” in the following grey cells.

	<b>Monday</b>	<b>Tuesday</b>	<b>Wednesday</b>	<b>Thursday</b>	<b>Friday</b>
9h45 – 11h15	Genetic data analysis	Statistics		Modelling	
11h30-13h00					Seminar
Lunch break					
15h00-16h30	Hot topics in Ecology and Evolution	Evolutionary applications			Population genetics
16h45-18h15					

Students will be asked to evaluate each course as well as the overall semester, by filling in a pre-formatted document. It is strongly recommended these evaluation forms are (anonymously) emailed to Céline, as it helps improving the courses.

Some courses will be evaluated by a final exam, the date of which is agreed with the students, other courses will be evaluated on individual or group assignment or simply on presentation and discussion during the course; please see below details for each course. Grades in the French system go from 0 to 20 out of 20 points. At least 10 corresponds to “pass”, 15 is a really good grade.

## **1 Hot topics in ecology and evolution, and reading papers (2 ECTS)**

Code: HAB811B

By Oliver KALTZ ([oliver.kaltz@umontpellier.fr](mailto:oliver.kaltz@umontpellier.fr)) and Philippe JARNE ([philippe.jarne@cefe.cnrs.fr](mailto:philippe.jarne@cefe.cnrs.fr))

The aim of this course is to learn to scan, to analyze and to question the literature around a so-called “hot research topic” and synthesize the main underlying questions and the current state of the art.

Working in small groups (2-3 students), the students give an oral presentation on the topic. The objective is to give an overview of the topic that lays out the underlying questions, why these questions are relevant or interesting, the history of work on the theme, the state of the art, and importantly, to identify open questions and future directions. The presentation is followed by a discussion with the classmates - asking probing questions about the presented studies, guiding the discussion in productive directions, etc. A list of (pretty wide) hot topics is provided by Oliver and Philippe, together with papers that can be used as starting point and to help narrowing down the subject to what is considered most interesting. For the last class session, hot topics are reshuffled between groups so that each group gives a short presentation of a topic other than their own (a recap, additional perspectives, futures directions...).

In addition, (i) the first class session comprises a writing assignment given to each student, and (ii) the following sessions begin with brief “News & views” presentations, where the students pick a selection of recent articles from a journal from natural or social sciences (one journal per student) and summarize them.

Evaluation will be based on oral presentations and participation to the course (how students perform in the presentations, in generating discussion and in overall participation to the discussions)

## **Statistics (3 ECTS)**

Code: HAB820B

By Céline DEVAUX ([celine.devaux@umontpellier.fr](mailto:celine.devaux@umontpellier.fr))

The course scans through univariate linear models, and aims at providing students with (i) solid mathematical and theoretical background, (ii) insights into protocol and model building and (iii) knowledge for accurate interpretation of data. At the end of the course, students should be well aware of many classical models in ecology and evolution and some estimation methods; they would thus be able to autonomously build their own experimental designs and analyze their own data. The course is meant to be an open discussion and Céline will go through all questions students have.

A possible schedule for the sessions can be:

- 1 Brief recap of descriptive statistics and hypotheses tests
- 2 Explicit link between multivariate and univariate analyses, using multiple regression
- 3 Building simple ANOVAs and make a posteriori validation tests and group differences
- 4 Building ANOVAs with complications, such as random factors and non-independence
- 5 Insights into model selection, and discussion of students' own data and models
- 6 Group project during 2 or 3 sessions, depending on time; groups of 3 students will be assigned a biological question and corresponding data set(s) and will have to build linear models to answer the question. This assignment will thus consist of applying tools discussed during the course.

Evaluation will consist of grading the groups of students during two oral presentations of their assignment, and a written report.

## **Population genetics (3 ECTS)**

Code: HAB816B

By Yannis MICHALAKIS ([Yannis.Michalakis@ird.fr](mailto:Yannis.Michalakis@ird.fr)), Thomas LENORMAND ([Thomas.LENORMAND@cefe.cnrs.fr](mailto:Thomas.LENORMAND@cefe.cnrs.fr)) and Guillaume MARTIN ([guillaume.martin@umontpellier.fr](mailto:guillaume.martin@umontpellier.fr))

The objective of this course is to provide the theoretical background for understanding, and potentially being able to use and apply the principles of how selection will affect the evolution of populations. Yannis will describe the basics of selection theory and show with elementary algebra that it is possible to derive some fundamental results in Population Genetics, such as Fisher's Fundamental Theorem. He will also give an introduction to mutation-selection balance and two-locus theory. The latter topics are put in perspective in the courses by Thomas on the evolution of sexual reproduction, migration and local adaptation. Thomas will also present the theory that allows understanding the dynamics of adaptation. Guillaume's courses will explain how stochastic effects interact with selection to influence the fate of adaptive mutations.

Evaluation will be based on presence, participation, homework and/or written exam.

## **4 Genetic data analysis (3 ECTS)**

Code: HAB809B

By Renaud VITALIS ([renaud.vitalis@inrae.fr](mailto:renaud.vitalis@inrae.fr)) and Raphaël LEBLOIS ([raphael.leblois@inrae.fr](mailto:raphael.leblois@inrae.fr))

The objectives are threefold: (i) to remind students with the theoretical bases of some fundamental concepts of population genetics theory; (ii) to detail some "classical" inference methods (e.g., F-statistics) and more "modern" approaches (based, e.g., on coalescent theory); (iii) to show how demographic history may be inferred from the analysis of genetic polymorphism. Sessions are as follows:

- 1 Classical inference in population genetics. F-statistics provide a useful description of genetic structure at several levels (individuals, populations, etc.). The definition of F-statistics as well as the statistical framework used to develop estimates of these parameters will be examined, and then some application examples for the inference of sex-specific demography will be provided.

2 Inference of dispersal in isolation-by-distance models. Limited dispersal results in a correlation between genetic and geographic distances. How dispersal characteristics can be inferred from the analysis of genetic polymorphisms will be shown.

3 Maximum-likelihood and Bayesian inference in population genetics. Modern techniques of inference in population genetics are based upon maximum-likelihood and Bayesian methods. The principles of these methods will be shown, and some application examples with the software package STRUCTURE will be provided.

4 Coalescent theory. Coalescent theory provides a conceptual framework for the study of genetic variation in populations, and is the source of essential tools for making inference about population evolutionary history. The basics of coalescent theory will be developed and some application examples for the inference of population size changes will be provided.

5 Measuring selection from gene frequency data. The recent advent of high throughput sequencing and genotyping technologies makes it possible to produce, easily and cost-effectively, large amounts of relevant information for the characterization of population genetic diversity, even for species for which a detailed knowledge of the genome structure is not yet available. How this information can be used to detect genomic signatures of past or on-going selection will be shown.

Evaluation will be based on an oral presentation of a research paper and participation.

### **Modelling (3 ECTS)**

Code: HMBE224

By Sandrine MAURICE ([sandrine.maurice@umontpellier.fr](mailto:sandrine.maurice@umontpellier.fr))

Modelling is a methodology that is frequently used in biological sciences nowadays, in particular in ecological and evolutionary studies. However, models usually frighten students. The aim of this course is to show that modelling is by no means more inaccessible than other techniques in biology. The goal is to give students a feel of how a model is built, to be able to spot the key assumptions behind a result, and to test their validity. The course will seek to familiarize the students with several basic modelling techniques (stochastic or deterministic dynamical systems and their analysis) and tools (mathematical softwares, computer simulation). Students will perform practical works on the different phases of modelling, from the formalization of the biological hypotheses to the interpretation of the results

The course will be based on an initial problem, either purely hypothetical scenario or based on a given published dataset, the students will work by groups of 2 -3 and will build up the model to describe the situation at hand, analyze it mathematically and simulate it. They will work on computers and use any mathematical software for analysis and simulations (most likely Mathematica).

As the groups will progress on their project, we will present tools for the study of dynamical systems (individual based simulation, stochastic models, deterministic models and their analysis).

The last sessions will be dedicated to summarize the tools and individual exercises.

Evaluation will be based on a written exam.

### **Evolutionary applications (1 ECTS)**

Code: HAB807B

By Yannis MICHALAKIS ([yannis.michalakis@ird.fr](mailto:yannis.michalakis@ird.fr)), Frédérique VIARD ([frederique.viard@umontpellier.fr](mailto:frederique.viard@umontpellier.fr)) and Bruno ERNANDE ([Bruno.Ernande@ifremer.fr](mailto:Bruno.Ernande@ifremer.fr))

The course discusses cases where evolutionary biology based implementations provide invaluable insight in applied issues such as vector control, conservation biology, invasion biology or fish stock management.

Evaluation will be based on presence, participation, homework and/or written exam.

## 6. Organize your research projects

### Before a student starts a project

Please inform Céline and Frédérique as soon as possible if you wish to conduct a research project in Montpellier; see the table with important dates copied below. Before a student starts a project, a written description of the project has to be submitted to and agreed upon by the local coordinators. In particular, the project should be on some aspect of Evolutionary Biology (and not merely write that it might be relevant for evolution: we agree of course that “nothing in biology makes sense except in the light of evolution”, but this does not mean that all biologists do evolutionary biology!), since the MEME program is supposed to provide training in this field. This is a very important criterion and should not be overlooked. Experience shows that opinions may vary on what is part of Evolutionary Biology and what is not. A simple way to know if a project is within the scope of MEME is to ask whether you could submit your project to the journal “Evolution”. If not, then it is probably not a good fit. If yes, then it is probably a good fit.

Note that a post will be email to evolmontp twice a year to the Montpellier community of Evolutionary biologists to offer research projects to the MEME and that a list will be forwarded to the Groningen management office.

	<b>M1S8</b>	<b>M2S9</b>	<b>M2S10</b>
contact coordinators*	November	June	November
start registration*	mid-November	mid-June	mid-November
submit project proposal*	February	mid-June	mid-November
establish work agreement*	Early March	Late June	Early December
start project	Early April	Early September	As early as February
submit short report	Late April	Early October	Early February or March
submit project	10 days before end of June	10 days before end of February	10 days before end of August
defend Project and leave Montpellier	End of June	End of February	Late August

\* at the latest

### Doctoral school competition for thesis grants

mid-June (but there are other grants, see dedicated section)

### Convention de stage = “work agreement”

Once a project has been approved, the student must fill the on-line convention **AS SOON AS POSSIBLE** especially for the M2S9 who wish to start their project in September. The convention can be printed in English. The convention has to be completed, and signed by all parties to be valid; this protects you in the unlikely case of an accident, and this allows you to be paid for the internship.

**Here are the steps to follow, please ask your supervisor to help you**

**1.** Sign in the ENT, using the institutional email provided during registration, and click on Pstage

Get your Student number

Fill in your address and mail (both personal and institutional)

Check that “Caisse d’assurance” is « régimes spéciaux » (étudiant étranger)

Choose the year of the internship

Choose the “Element pédagogique”, between S2, S3 or S4 (now called S8, S9 and S10)

“Durée du stage”: around 12 weeks for M1, around 24 weeks for M2; Céline will have clarify this with you

You may use the following link to calculate the number of working days per month (do this with your supervisor): <https://www.service-public.fr/simulateur/calcul/gratification-stagiaire>

**Find your “Etablissement / Organisme d’accueil”: the institute that pays you (important, only your supervisor knows this)**

Find your “Service d’accueil” = Hosting organization: the lab in which you will conduct your research project

“Lieu du stage”: the place where you work

Fill in your “Tuteur professionnel”: your supervisor

Describe your internship: the subject, what you will do, if there are specific requirements (lab work field work, specific working hours...)

Fill in the “Enseignant référent”: Céline Devaux

Fill in “Signataires“: the most difficult part...it depends on what you have selected for Etablissement/ Organisme d’acceuil, if UM this is Philippe Augé, if CNRS this is Jérôme Vitre; for the Etablissement d’enseignement et de formation, this is always Alain Hoffmann

**2.** Make this Convention be validated by Céline (she usually receives an automatic message and validates immediately; if it is not validated within 7 days, students should write to her with their convention number).

**3.** Once validated, upload it, sign it, and make it signed by your supervisor, make it signed by Céline. Have the convention signed by your “Service d’accueil” (UM or CNRS or IRD...): here your supervisor should know who is this administrative person for the host organization.

**4.** The convention should then be given to the Bureau des Masters (Anais Chazot [anais.chazot@umontpellier.fr](mailto:anais.chazot@umontpellier.fr)), who will ask the Head of the Faculty of Sciences (currently, Alain Hoffman) to sign it, and then your convention will be emailed to you (CC Céline)

## **Payment**

French law requires that labs give a small grant ~550€ per month to each student spending more than two months in their (French) lab. This is great for students, but it represents a substantial amount of money for the lab. Consequently, some students will have trouble finding a research project and this is in particular why **students should contact potential supervisors a long time in advance**. Also, students are therefore expected to work hard and be very committed.

Please make sure to get an IBAN from your bank, that you will need to provide to get paid.

## **Should a student stay in Montpellier or change?**

Should students wish to spend more than one semester in Montpellier, we strongly encourage students to take advantage of the large diversity of research projects going on in Montpellier, and change projects and labs from one semester to another, despite doing more than one project in a given lab is not forbidden.

## **Where to perform a project?**

There should be a lab for you ! here are some website addresses (and acronyms, very French)

[CEFE Center for Functional and Evolutionary Ecology](#)

[ISEM Institute of Evolutionary Sciences of Montpellier](#)

[MIVEGEC Infectious Diseases and Vectors: Ecology, Genetics, Evolution and Control](#)

[DGIMI Diversity, Genomes and Insects-Microorganisms Interactions](#)

[AMAP botAny and Modelling of Plant Architecture and vegetation](#)

[CBGP Center for Population Biology and Management](#)

[AGAP Genetic Improvement and Adaptation of Mediterranean and Tropical Plants](#)

[BGPI Biology and Genetics of Plant-Parasite Interactions](#)



## **7. Evaluation of projects**

A single grade, which includes evaluation of the final report and the oral defense (presentation and answers to the questions), will be given.

### **Expectations for the projects**

The students are expected to work hard, to perform a literature review of their subject, to be autonomous, to have good knowledge of science, to think well, to be motivated, to be well integrated into the lab, to take part in collective work, and, at least by the end of the research, to show skills to write and speak well.

For those students who do not respect the deadline for submitting the report, the grade will be lowered according to the number of days of delay. This may seem harsh, but being able to meet deadlines is very important in research.

### **Mentoring**

French students usually do not have any mentor (they use their research supervisor as such). To ensure that M1 and especially M2 projects go well and that students get the most out of their project and acquire new skills, Céline and Frédérique will have a friendly and open discussion with every single student, late April for the M1S8 and M2S10 students, and late September for M2S9 students.

### **Requirements for M1 projects**

The research is performed in April-May-June each year.

Students will write a short report of 4 pages by the end of April, including an introduction, a section of materials and methods, planned analyses, and references. Students will get back written comments that should be taken into account for the final version. These intermediate short reports should help students organize their project and make sure no one is on a wrong track, they are not graded.

Students will write a final report for the end of June (day changes from year to year) of 4000 words of main text, excluding the title page (title, abstract of 250 words, 6 keywords, names of supervisors and lab, number of words for the main text), figures, tables and their legends, references, and acknowledgment. Students can include an appendix, which is only meant to be used by the lab or other students willing to repeat the experiment(s) or willing to have the original data; appendix material will not be evaluated and probably will not be read by the defense committee.

The defense takes place at the very end of June (it changes every year) and consists in a 8 minute presentation in front of all students and a committee of 4-7 people, of which at least two will have read the report. These two people will ask the student questions during 4-5 minutes, and the rest of the jury may ask their own questions during 10 additional minutes.

## Requirements for M2 projects

The research is performed from September to Late February (S9) and from February to Late August (S10).

Students will write a short version of 5 pages early October, or early March (depending on semester), including an introduction, a section of materials and methods, planned analyses, and references. Students will get back written comments that should be taken into account for the final version. These intermediate short reports should help students organize their project and make sure no one is on a wrong track.; these are not graded.

Students will write a final report for the end of February or August (day changes from year to year for each semester) of 8000 words of main text, excluding the title page (title, abstract of 250 words, 6 keywords, names of supervisors and lab, number of words for the main text), figures, tables and their legends, references, and acknowledgments. Students can include an appendix, which is only meant to be used by the lab or other students willing to repeat the experiment(s) or willing to have the original data; appendix material will not be evaluated and probably will not be read by the defense committee.

The defense takes place mid/late-February or mid/late August and consists in a 10 minute presentation in front of all students and a committee of 2-4 people, of which at least two will have read the report. These two people will ask the student questions during 5 minutes, and the rest of the jury may ask their own questions during 5-10 additional minutes.

## 8. General guidelines for writing a research report

Many students struggle to write their first research papers, not knowing what to put into the introduction vs the discussion. Below are some general guidelines, modified from a handout prepared by Professor Camille Parmesan for a class she was teaching to graduate students at the University of Texas (Austin) on how to write a research manuscript - therefore many of the wording examples are drawn from climate change.

### Common format for all reports

The font should be Times New Roman, 12 points, justified, the interval between lines should be 1.5, and lines should be numbered.

Reference citation should follow the Evolution or the American Naturalist models.

### Introduction

The introduction should provide the reader with the necessary background to understand the context of the research being presented in the paper - so why you did what you did.

Someone from outside this area of research should care about your results. It's helpful to think of the introduction as addressing the following key issues:

- Set the Stage: Present the state of the field and state the broad question any biologist should be interested in. This should be framed as broadly as you can
  - Why is this topic important?
  - Is it important in different ways to different audiences? If so, you often have to choose which audience you are targeting.
- The Set up = Place your study in the context of the broad stage that you built in the preceding text. Present gaps in knowledge on this topic, weaknesses in understanding, *etc.* This section should provide the “set-up” that justifies the specific research you did.
- The hole = State how your study helps to fill this gap or helps to address the broader

question in a novel way, or addresses a novel aspect of the broader question.

- The last paragraph is often a “road map” that lays out your specific research being presented in this paper. For example, you might end with the following sentence:
  - “Here we present an analysis of data from 2000 species in 35 studies which contained data on both biotic and climatic constraints operating at the boundaries of species’ distributions.”
  - Note that you should be careful NOT to give your results in the introduction. You should present your specific question and research design used to address that question, but not the answers you got.

## Methods

- Your study system: This should have enough information for the reader to understand why your system is good for addressing the question you are addressing - this may be because of a lot of previous research on this species/system, which provides a good context for your own research - or it may include ease of manipulation - or it may just provide some background that helps the reader to have a vision of the study organism and field situation as they read through the experiments. Here you should also make clear any constraints you might have had in using this specific species or system - so include modifications to the “perfect” experimental design that you had to make because of some aspects of working with or raising this species.
- Describe your experimental design and how you analyzed it. This should be detailed enough that the reader could duplicate your study. If this is very complex, authors often give a general description of the study here, but put complexities into an appendix. Provide details and justification of the methods you used, **not a raw list of software packages**.

## Results

- Results = Specific findings from your statistical analyses or models. This can also include graphical exploration if that led to key insights.
- Give all numbers you think are important, and present key graphs/tables here. You might also end up presenting graphics or tables in the discussion, but your main findings should first appear in the “results” section, while more derived or synthetic findings might first appear in the discussion.
- Your assessments of the quality of the information should be embedded in your reporting. If you think there were any problems with the data, say so (and why).
- The results can end with a summary of results, but you usually save any synthetic or summary statements about results for the beginning of your discussion.

## Discussion

Synthesis of conclusions which follow from your synthesis of results. In other words, what do you feel the different pieces of evidence and different angles presented by all the different analyses and graphical presentations all add up to?

- Novelty: Clearly present which aspects of your study follow from what's known and which you feel are truly novel.
- Discuss some of the problems remaining, holes in knowledge, data or general information.
- You might include a section that has some of your own ideas about what should be done next, or where research should be going, or priorities for funding, *etc.* This is where to highlight your own insights that have formed over the course of reading up on this topic.
- The big picture: You should end your discussion with a statement of the “big picture”.

This should be a clear statement of the broader impacts of your results

- What is the deep, underlying meaning?
- What are the bigger impacts your results/conclusions could have on the field?
- It is often helpful to define impacts in terms of a broader field or a different field. For example, you might conclude your paper with a statement similar to the following:
  - "Our results provide an important contribution to the continuing debates about how species might respond to continued global warming." OR
  - "This conclusion has important implications for conservation planning in the face of future global warming." And explain how

## 9. Requirements for the diploma

MEME students need to be registered with both an IA and IP **at least one semester** at the University of Montpellier and to have defended their research there (possibly online); students have to be registered **with an IA during the second year** of master (so please answer to Luce Cardenas in September when she asks again for your registration). If a student goes to Harvard or Lausanne during M2, this student can be registered in Montpellier. As anywhere else, a student can be registered in Montpellier up to three semesters. Students who wish to have a diploma from University of Montpellier must have obtained the grades for all their semesters, including those during which they were not registered in Montpellier, before the end of their graduation year (these can be obtained from the Groningen office).

### Diploma

The students do not need to do anything (other than getting their grades and being registered) to get the diploma. Once the UM administration has the grades for all the semesters; it produces within a few days a certificate of success, which is in principle sufficient for registering for a PhD degree anywhere. The true diplomas take actually a few months to be printed. By default they are m to the MEME coordinator in Groningen, who then dispatches them to students. The only alternative is that students physically pick them up at the UM (in that case please inform Céline or Frédérique).

### Transcripts and DIPLOMA

The MEME coordinator in Groningen should have all grades, including those from Montpellier. All grades from Montpellier, including those for the research projects, will be emailed to the MEME coordinator in Groningen.

## 10. PhD opportunities, in Montpellier and France

Having a proper evaluation grade for a research project by the end of May will allow a student to apply to a PhD grant from the French local doctoral schools; interviews for Montpellier are early July each year, but the mandatory registration is early May. There are few grants from the Doctorate School (but this should change in the future) but there are many other opportunities (ERC grants, ANR grants, ...). See the wiki for more details on doctoral schools, what they are and how to apply, and ask your supervisor about opportunities.

The local doctoral school is GAIA (see <https://gaia.umontpellier.fr/>) (in French...)