

# Entomology Summer Course

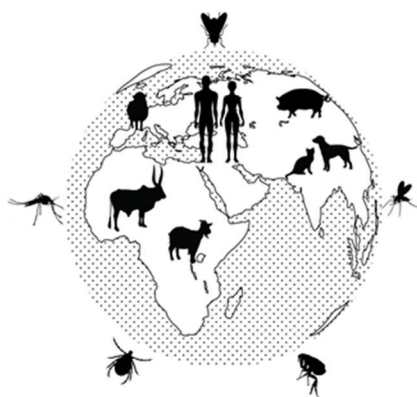
*'Hands on' Course on Arthropods  
of Medical and Veterinary Significance:  
A global perspective, from theory to practice*

**4 - 8 July, 2022**

## Detailed programme and practical information

National Veterinary School of Toulouse, France

Continuing education in Medical and Veterinary Entomology



## SPONSORSHIP



The Parasitology and Entomology team of the National Veterinary School of Toulouse, France, organises an entomology course to be held from the 4<sup>th</sup> to the 8<sup>th</sup> of July 2022. The course will highlight topics such as arthropod-borne diseases, resistance in arthropod populations, control tools, principles of laboratory rearings, and morphological identification of arthropods of medical and veterinary importance.

The course will encompass several arthropod groups, namely sand flies, mosquitoes, *Culicoides* spp., Tabanidae, Muscidae, fleas, bedbugs and ticks. Lectures will generally take place in the morning, while the afternoon will be dedicated to laboratory and field work.

**Course venue:** National Veterinary School of Toulouse, 23 chemin des Capelles, 31076 Toulouse, France

**Fees:** 550 euros for students (MSc and PhD students) and EVPC residents, 1050 euros for other participants.

Fees include teaching and laboratory materials, transportation for field work, coffee, lunch breaks, social events and a public transport pass.

Transport to and from Toulouse, accommodation and breakfast, and some evening meals are not included in the fees.

**Application to the course:** please send a CV, a motivation letter in which should be mentioned the reasons you apply, the name of two referees and the application form (found at the end of this document) filled in with your details to Emilie Bouhsira: [emilie.bouhsira@envt.fr](mailto:emilie.bouhsira@envt.fr)  
Please note that all documents must be provided in English, otherwise the application will not be considered.

The selection of candidates will be based on motivation letter, CV and application date (the earlier the better).

**Deadline for application:** 30<sup>th</sup> of April 2022

**Language:** The official language of the course will be English

**Number of participants:** maximum 17

**Target participants:** EVPC residents and diplomates, postgraduate (MSc, PhD) students, Post-Doc scientists, research fellows, entomologists, laboratory staff.

**Vetoquinol-SFP Young Scientist Award:** Supported by the veterinary pharmaceutical multinational firm Vetoquinol ([www.vetoquinol.com](http://www.vetoquinol.com)), in partnership with the French Society of Parasitology (SFP), this grant will cover the accommodation and travel expenses (sponsored by Vetoquinol) and registration fees (courtesy of SFP).

The Young Scientist Award aims to support the work of a young PhD student from a Low and/or Middle Income Country for her/his outstanding contribution to the field of medical and veterinary entomology.

Candidates should fulfil the following criteria:

- be under the age of 35 years;
- be a PhD student at the time of application;
- come from a Low and/or Middle Income Country;
- must have authored at least one publication in international peer-reviewed journals as part of their PhD project and taken part to relevant scientific activities in the field of parasitology.

To apply, please provide a CV, list of publications and oral communications, the name of two referees and a motivation letter. All documents must be provided in English and sent to Emilie Bouhsira: [emilie.bouhsira@envt.fr](mailto:emilie.bouhsira@envt.fr)

### **How to get to Toulouse**

By plane: Toulouse-Blagnac international airport features direct flights to 74 destinations mostly in Europe and Northern Africa with a few additional seasonal long-haul connections. Many domestic flights from main French cities also run daily.

From the airport to Toulouse downtown:

- **Tram**: the tram line T2 connects Toulouse centre with the airport and back, running every 15 minutes. The tram connects with metro Line A at the stop 'Arènes' and metro Line B at the stop 'Palais de Justice'.
- **Bus and coach**: Shuttle buses to Toulouse city centre, run from the airport, outside Hall B, every 20 minutes. Faster than the journey by tram, it takes approximately 20 minutes to reach the city centre by bus, stopping at 'Compans Caffarelli' or 'Jeanne d'Arc' (both on Metro Line B), or 'Jean Jaurès' (Metro Lines A and B) or 'Toulouse-Matabiau' railway station.

- **By train:** Toulouse can be reached by train from other French cities (Toulouse-Matabiau railway station).
- **By car:** Toulouse can be reached by car using existing major highways (National road tax). Within the city, however, the parking is extremely limited and very expensive. The vet school has however a large car park where you can leave your car.

### **Accommodation**

The vet school is located in a residential neighborhood with limited public transportation, especially in the evening.

We recommend the **Residhome Occitania**, particularly for its location in-between the city center [public transportation (tram (Lines T1 and T2) and metro (Line A)) are at 5 minutes-walking distance] and the vet school (direct access with bus n°46). It is also directly reachable from the airport using the tramway.

The hotel is equipped with a swimming pool, which could be a great way to relax after a whole day of science! The weather in Toulouse is indeed usually very warm at the end of August.

Location : 93, avenue de Lombez - 31300 Toulouse

Tel. : +33 (0)5 61 44 08 34

E-mail : [toulouse.occitania@residhome.com](mailto:toulouse.occitania@residhome.com)

<https://www.residhome.com/residence-hoteliere-aparthotel-toulouse-185.html>

**Studio:** approximately 61 euros/night (room with double-bed or two single beds and equipped kitchen)

**One-bed room apartment:** approximately 73 euros/night (in addition to the studio equipment, a leaving room with convertible sofa)

Other options, closer to the vet school but further away from the city center:

<https://www.campanile.com/fr/hotels/campanile-toulouse-ouest-purpan>

<https://www.appartcity.com/fr/destinations/midi-pyrenees/toulouse/toulouse-purpan-aeroport.html>

<https://www.hotel-bb.com/fr/hotels/toulouse-purpan.html>

<https://www.accorhotels.com/fr/hotel-0445-novotel-toulouse-purpan-aeroport/index.shtml>

<https://www.residhome.com/residence-hoteliere-aparthotel-toulouse-199.html>

And also: <https://www.airbnb.fr>

To help your search, the neighborhood of the vet school is called “Lardenne”.

## **List of lecturers**

Richard Wall, B.Sc., M.B.A., Ph.D.

University of Bristol, United Kingdom

Carla Maia, DVM, M.Sc., Ph.D, Dip. EVPC

EBVS® European Veterinary Specialist in Parasitology

Institute of hygiene and and tropical medicine, Lisbon, Portugal

Claire Garros, M.Sc., Ph.D.

Centre of agricultural research for development (CIRAD), Montpellier, France

Tanja McKay, B.Sc., M.Sc., Ph.D.

Arkansas State University, USA

Fabrice Chandre, DVM, HDR, Ph.D.

Institute of Research for Development (IRD), Montpellier, France

Sylvie Cornélie, M.Sc., Ph.D.

Institute of Research for Development (IRD), Montpellier, France

Nil Rahola

Institute of Research for Development (IRD), Montpellier, France

Steve Torr, B.Sc., M.Sc., Ph.D.

Liverpool School of Tropical Medicine, Liverpool, United Kingdom

Emmanuel Liénard, DMV, M.Sc., Ph.D., Dip. EVPC

EBVS® European Veterinary Specialist in Parasitology

National Veterinary School of Toulouse (ENVT), Toulouse, France

Philippe Jacquet, DVM, HDR, Ph.D., Dip. EVPC

EBVS® European Veterinary Specialist in Parasitology

National Veterinary School of Toulouse (ENVT), Toulouse, France

Marc Desquesnes, DVM, HDR, Ph.D.,

Centre of agricultural research for development (CIRAD), Montpellier, France



Emilie Bouhsira, DMV, M.Sc., Ph.D., Dip. EVPC  
EBVS® European Veterinary Specialist in Parasitology  
National Veterinary School of Toulouse (ENVT), Toulouse, France

Jacques Guillot, DVM, HDR, Ph.D., Dip. EVPC  
EBVS® European Veterinary Specialist in Parasitology  
National Veterinary School of Maisons-Alfort (ENVA), Maisons-Alfort, France

Jean-Michel Bérenger, M.Sc.  
Laboratory of Insect and Diagnostic (LDI)  
IHU Méditerranée Infection, UMR Vecteurs – VITROME, Marseille, France

Gérard Duvallet, M.Sc., Ph.D.  
University of Montpellier, France

Lorenza Beati, M.D., Ph.D.  
Georgia Southern University,  
The US National Tick Collection, USA

Richard Birtles, B.Sc, Ph.D.  
University of Salford, Manchester, United Kingdom

Magalie René-Martellet, DVM, PhD  
VetAgro Sup, National Veterinary School of Lyon, France

Vincenzo Lorusso, DVM, Ph.D., Dip. EVPC, Dip. ACVM  
EBVS® and ACVM® European and American Specialist in Veterinary Parasitology  
European Commission, DG Research and Innovation  
University of Salford, Manchester, United Kingdom  
African Institute of One Health Research and Diagnostics, Nigeria

### **Preparatory work and final examination**

The attendees will receive a selection of papers covering the topics that will be developed during the course at least 15 days prior to the beginning of the summer school. The final examination will be made of 10 multiple choice questions and/or short answering questions.

A course feedback questionnaire will be given at the beginning of the course to each participant and will be collected at the end of the course.

## Detailed program

*NB: Please note that depending on the sanitary situation some lectures coming from overseas might present online, or be replaced by another expert.*

### Monday 4<sup>th</sup> of July 2022

**08h00:** Welcome coffee

08h30-12h30: Lectures

**08h30-10h15:** Introduction to medical and veterinary entomology, Prof Richard Wall

**10h15-10h30:** Coffee break

**10h30-11h30:** Bio-ecology and pathogenic role of *Culicoides* spp., Dr Claire Garros

**11h30-12h30:** Bio-ecology and pathogenic role of sandflies, Dr Carla Maia (*to be confirmed*)

**12h30-14h00:** Lunch break

14h00-18h00: Practical work

**14h00 - 16h00:** Principles of morphological identification of sandflies and dissection of female sandflies, Dr Jorian Prudhomme

**16h00-16h30:** Coffee break

**16h30- 18h00:** Principles of morphological identification of *Culicoides* spp., and of trapping (How to set up a trap for *Culicoides* in the vet school facilities (large animal hospital)),

Dr Claire Garros

*19h00: Guided visit of Toulouse*

*20h00: Diner altogether in Toulouse downtown*

## Tuesday 5<sup>th</sup> of July 2022

08h15-12h30: Lectures

**08h15-10h00: Mosquitoes: taxonomy, bioecology, and *Dirofilaria immitis*, heartworm interactions,** Prof Tanja McKey

**10h00-10h30:** Coffee break

**10h30-11h30: Mosquito control and public health,** Dr Fabrice Chandre

**11h30-12h30: Mechanisms of insecticide resistance in mosquitoes,** Dr Sylvie Cornélie

**12h30-14h00:** Lunch break

14h00-17h00: Practical work

**14h00-17h00: Principles of morphological identification of mosquitoes,** Nil Rahola  
**Training on the recognition of the main European mosquito species of medical and veterinary significance.**

Participants need to bring their laptop with them so as to install the software “MoskeyTool”, and will be taught how to use it.

Principles of mosquito mounting will also be addressed.

### ***To be confirmed regarding the sanitary conditions***

*19h00: Welcome speech by a council member and visit of the Toulouse Capitol (to be confirmed)*

*20h00: Dinner all together in Toulouse downtown*

## Wednesday 5<sup>th</sup> of July 2022

08h15-12h30: Lectures

**08h15-10h00: Bio-ecology of *Glossina* spp. and African trypanosomiasis**, Prof Steve Torr

**10h00-10h30: Coffee break**

**10h30-11h30: Bio-ecology and pathogenic roles of stable flies**, Dr Emmanuel Liénard

**11h30-12h30: Principle of alternative control tools against stable flies and tabanids**, Prof Philippe Jacquet and Dr Marc Desquesnes

**12h30-13h30: Lunch break**

13h30-18h30: Field work

**13h30:** Presentation of the field work and pig farms that will be visited

**14h00:** Departure

**Field work in a pig farm in the vicinity of Toulouse or on the site at the veterinary school to learn the principles of trappings of stable flies and tabanids**

**18h30/19h00:** Back to Toulouse

Free evening

## Thursday 7<sup>th</sup> of July 2022

08h15-12h30: Lectures and practical work

**08h15-09h15: Fleas and flea-borne pathogens**, Dr Emilie Bouhsira

**09h15-10h15: Sarcoptidae: bio-ecology and pathogenic roles in human and animals**, Prof Jacques Guillot (*online*)

**10h15-10h30: Coffee break**

**10h30-11h30: Bio-ecology and pathogenic role of bedbugs**, Jean-Michel Bérenger

**11h30-12h30: Demonstration of bedbugs detection by dogs – Eco-Flair company (to be confirmed)**

**12h30-14h00: Lunch break**

14h00-17h00: Practical work

**14h00-17h00: Principles of morphological identification of stable flies and tabanids**, Prof Gérard Duvallet

**19h00-20h00: Guided visit of Natural Museum History of Toulouse**

**Free evening**

## **Friday 8<sup>th</sup> of July 2022**

08h15-12h30: Lectures

**08h15-10h00: Ticks: Biology, Ecology and Phylogeny**, Prof Lorenza Beati

**10h00-10h30: Coffee break**

**10h30-11h30: Zoonotic tick-borne diseases: Lyme Disease and Bartonellosis**, Prof Richard Birtles

**11h30-12h30: Ticks and tick-borne diseases in companion animals**, Dr Magalie René-Martellet

**12h30-14h00: Lunch break**

14h00-17h00: Practical work

**14h00-16h45: Principles of tick morphological identification**, Prof Lorenza Beati

**16h45-17h00: Coffee break**

**17h00-17h30: Short final examination**

**17h30-18h00: Awarding Ceremony**

**Opening: The role of international cooperation in science**, Dr Vincenzo Lorusso *(to be confirmed)*

**Hand over of course certificates and of the Young Scientist Award**

*20h30: Gala dinner in Toulouse downtown*

## REGISTRATION FORM

Entomology Summer Course

4-8 July 2022

Ecole Nationale Vétérinaire de Toulouse

To the course organiser: Dr Emilie Bouhsira

E-mail: [emilie.bouhsira@envt.fr](mailto:emilie.bouhsira@envt.fr)

To be sent with the CV and motivation letter in English

Name..... Surname.....

Institution.....

Address.....

City..... Country.....

Phone..... E-mail.....

Date of arrival:....., Date of departure: .....

Specific dietary  
intolerance/allergy/requirement.....

☐ Acceptance of terms and conditions

Please be aware that the course organizers are not responsible for any damage or injury in any way arising through transport, field and laboratory activities during participation of the course. We strongly suggest you to take out personal accident insurance if you do not already have it.

Place and date ..... Signature.....