

**Supervised projects Université François-Rabelais Tours**  
**Biology**  
**2016-2017**

Exchange students who are interested in a subject (below) or interested in other fields of research can contact the Erasmus coordinator in biology :  
[elisabeth.huguet@univ-tours.fr](mailto:elisabeth.huguet@univ-tours.fr)

Subjects are also available at [cces.univ-tours.fr](http://cces.univ-tours.fr)

### Subject 1

**Supervisor :** Sylvaine Renault or Corinne Augé-Gouillou

**Laboratory :** EA 6306 - Instabilité Génétique et Cancer

[http:// igc.univ-tours.fr](http://igc.univ-tours.fr)

**Subject :** Transposable elements and cancer

**Students :** Preference for a master student (period January to June 2017)

### Subject 2

**Supervisor :** Julien Petriguet

**Laboratory :** Laboratoire Infectiologie et Santé Publique (UMR 1282), Equipe Recherche et Innovation en Chimie Médicinale

<http://www6.val-de-loire.inra.fr/infectiologie-santepublique>

**Subject :** Organic synthesis of products of pharmaceutical interest/ Synthèse organique de composés d'intérêts pharmaceutiques

**Students :** Preference for a master student (period September to January)

### Subject 3

**Supervisor :** Alexandre SURGET

**Laboratory :** U930 'Imaging and Brain' INSERM

<http://www.u930.tours.inserm.fr/welcome-to-the-site-umr-inserm-u930-400366.kjsp>

**Subject :** Optogenetic/Electrophysiologic characterisation of brain circuits involved in stress response and antidepressant effect

**Students :** Students at bachelor or master level (any period of the year)

### Subject 4

**Subject :**

Costs and benefits of family interactions in an insect with facultative maternal care

**Supervisor :**

Joël Meunier, CR CNRS

[http://irbi.univ-](http://irbi.univ-tours.fr/index.php?mact=CGUserDirectory,cntnt01,detail,0&cntnt01lang=fr_FR&cntnt01group=IRBI&cntnt01uid=157&cntnt01returnid=178)

[tours.fr/index.php?mact=CGUserDirectory,cntnt01,detail,0&cntnt01lang=fr\\_FR&cntnt01group=IRBI&cntnt01uid=157&cntnt01returnid=178](http://irbi.univ-tours.fr/index.php?mact=CGUserDirectory,cntnt01,detail,0&cntnt01lang=fr_FR&cntnt01group=IRBI&cntnt01uid=157&cntnt01returnid=178)

**Laboratory/ institute :**

Institut de Recherche sur la Biologie de l'Insecte (IRBI)  
UMR 7261, CNRS / Université François Rabelais  
Equipe Ecologie Chimique et Evolutive des Insectes Sociaux (ECEIS)

**Detailed subject :**

Group living is a common phenomenon in nature and is typically associated with benefits and costs for group members. In the context of family life, these benefits are typically thought to result from the expression of parental care and the costs from sibling rivalry over parental resources. However, recent studies in the European earwig *Forficula auricularia* are at odd with this pattern. In this insect with facultative maternal care, we showed that maternal presence can be costly for newborn juveniles and that juveniles may benefit from cooperative behaviors expressed by their siblings. During his/her internship, the student will develop and conduct a project aiming at better understanding the nature and derived costs/benefits of family interactions in the European earwig. Depending on the period of the internship, the project will mostly focus on mother-offspring interactions (which occurs between January and June) or on adult-adult interactions (which mostly occur between June and November). Depending on student's interests, the project will involve methods of behavioral ecology, insects' immunity and physiology and/or of chemical ecology.

*More information on our research on the evolution of group living in insects:*

<http://joelmeunier.wix.com/researchpage>

*Publications associated with the project:*

- Kramer J, Thesing J, Meunier J (2015) Negative association between parental care and sibling cooperation in earwigs: a new perspective on the early evolution of family life? *J Evol Biol* 28:1299–1308. doi: 10.1111/jeb.12655
- Falk J, Wong JWY, Kölliker M, Meunier J (2014) Sibling cooperation in earwig families provides insights into the early evolution of social life. *Am Nat* 183:547–557. doi: 10.1086/675364
- Meunier J, Kölliker M (2012) When it is costly to have a caring mother: food limitation erases the benefits of parental care in earwigs. *Biol Lett* 8:547–550. doi: 10.1098/rsbl.2012.0151

**Students :** Students at bachelor or master level (any period of the year)