

### Information on Postgraduate Research Scholarship - Ref: VCS-ES-09-17

Faculty: Engineering & Science

Department: Natural Resources Institute

Lead Supervisor: Professor Susan Seal

Project Title: **Bioinformatician: Evolution of whiteflies belonging to the *Bemisia tabaci* species complex**

**Project Description:**

The Natural Resources Institute (NRI) seeks an enthusiastic bioinformatician to use novel algorithms to investigate the genetic mechanisms underlying speciation and invasiveness across the globally-devastating whitefly (*Bemisia tabaci*) species complex. The *B. tabaci* species complex can cause severe crop losses and is a threat to global food security, as well as currently being one of world's worst invasive alien species (<http://www.issg.org>). Over 35 genetic groups (termed 'cryptic species') of *B. tabaci* are proposed, and despite being morphologically identical, these species have evolved from each other millions of years ago.

Professor Susan Seal and colleagues at the NRI have generated extensive genome and transcriptome next generation sequence (NGS) datasets from a range of populations, as part of a project funded by the Bill & Melinda Gates Foundation (see <http://www.nri.org/news/2015/nri-awarded-major-grant-to-tackle-cassava-whitefly-in-sub-saharan-africa>). Analyses of these shows that *B. tabaci* genomes contain numerous genetic novelties, including long introns, gene duplications and expanded gene families that have roles in detoxification, and hence plant host range and insecticide resistance in this species complex. This project will use bioinformatics investigate these genomic features focusing on those that have shaped the evolution of this species complex and have led to global invasiveness of particular populations. Proficiency in Perl or Python and R is essential, as is experience working on Linux/Unix batch systems.

**Duration:**

**3 years, Full-Time Study**

**Bursary available (subject to satisfactory performance):**

Year 1: £14,553

Year 2: In line with RCUK rate

Year 3: In line with RCUK rate

*In addition, the successful candidate will have their tuition fees paid for a period of three years. Scholarships are available for three years from the date scholars first register as an MPhil/PhD student with the university. Scholarships are available for full-time study only and applicants must meet the programme entry requirements.*

<b>Person Specification of Essential (E) or Desirable (D) requirements:</b>	
<b>Criteria:</b>	<b>E or D</b>
<b>Education and Training:</b>	
<ul style="list-style-type: none"> <li>1<sup>st</sup> Class or 2<sup>nd</sup> class, First Division (Upper Second Class) Honours Degree or a taught Master's degree with a minimum average of 60% in all areas of assessment (UK or UK equivalent) in Bioinformatics or a related discipline</li> </ul>	<b>E</b>
<ul style="list-style-type: none"> <li>For those whose first language is not English and/or if from a country where English is not the majority spoken language (as recognised by the UKBA), a language proficiency score of at least IELTS 6.5 (in all elements of the test) or an equivalent UK VISA and Immigration secure English Language Test is required, unless the degree above was taught in English <b>and</b> obtained in a majority English speaking country, e.g. UK, USA, Australia, New Zealand, etc, as recognised by the UKBA.</li> </ul>	<b>E</b>
<b>Experience &amp; Skills:</b>	
<ul style="list-style-type: none"> <li>Previous experience of undertaking research (e.g. undergraduate or taught masters dissertation)</li> </ul>	<b>E</b>
<ul style="list-style-type: none"> <li>Master's degree (UK or UK equivalent) in Bioinformatics</li> </ul>	<b>D</b>
<ul style="list-style-type: none"> <li>Previous experience working on Unix/Linux batch systems</li> </ul>	<b>E</b>
<ul style="list-style-type: none"> <li>Proficiency in Perl or Python and R</li> </ul>	<b>E</b>
<b>Personal Attributes:</b>	
<ul style="list-style-type: none"> <li>Understands the fundamental differences between a taught degree and a research degree in terms of approach and personal discipline/motivation</li> </ul>	<b>E</b>
<ul style="list-style-type: none"> <li>Able to, under guidance, complete independent work successfully</li> </ul>	<b>E</b>
<b>Other Requirements:</b>	
<ul style="list-style-type: none"> <li>This scholarship may require Academic Technology Approval Scheme approval for the successful candidate if from outside of the EU/EEA</li> </ul>	<b>E</b>
<ul style="list-style-type: none"> <li>A 1 page research outline describing how you would approach this topic</li> </ul>	<b>E</b>
<ul style="list-style-type: none"> <li>The scholarship must commence before 29 September 2017</li> </ul>	<b>E</b>

**Closing date for applications:** *midnight UTC on 28 June 2017*

**For further information contact:** Professor Susan Seal

**E-mail:** [s.e.seal@gre.ac.uk](mailto:s.e.seal@gre.ac.uk)

#### **Making an application:**

Please read this information before making an application. Information on the application process is available at: [http://www2.gre.ac.uk/research/study/apply/application\\_process](http://www2.gre.ac.uk/research/study/apply/application_process) . Applications need to be made online via this link. **No other form of application will be considered.**

All applications **must include** the following information. **Applications not containing these documents will not be considered.**

- **Scholarship Reference Number (Ref)**– included in the personal statement section together with your personal statement as to why you are applying
- **a 1 page research outline describing how you would approach this topic\***
- **a CV including 2 referees \***
- **academic qualification certificates/transcripts and IELTS/English Language certificate if you are an international applicant or if English is not your first language or you are from a country where English is not the majority spoken language as defined by the UK Border Agency \***

*\*upload to the qualification section of the application form. Attachments must be a PDF format.*