

Project proposal template – Faculty studentships Summer 2014

<i>Project title</i>	Investigation of molecular mechanisms of adaptation of <i>Campylobacter jejuni</i> to host	<i>Director of Study</i>	Andrey Karlyshev
<i>Second Supervisor</i>	Alison Kelly	<i>School</i>	Life Sciences
<i>Other members of supervisory team</i>	Ruth Griffin	<i>Any requirements from applicant (eg degree in specific subject area)</i>	BSc or MSc Degree in any relevant subject area, including but not
Project summary (max 1,000 characters)			
<p>Despite recent progress in understanding of biology of <i>Campylobacter jejuni</i>, it remains the major bacterial causative agent of gastrointestinal diseases worldwide. One remarkable feature of this pathogen is its adaptability to changing conditions both <i>in vivo</i> and <i>in vitro</i> due to 'genome fluidity'. The latter is manifested by gene rearrangements and variation in lengths of homopolymeric tracts leading to reversible changes in gene expression. Project aim: detect genetic changes in <i>C. jejuni</i> using tissue culture cells as a model of infection. Genomes of bacteria before and after invasion of host cells will be sequenced using an automatic Personal Genome Sequencing Machine (IonTorrent). All required training will be provided by the supervisor. An applicant is expected to have some background in microbiology and/or molecular biology and have keen interest in this area of research. On completion of this training a student will learn state of the art methods of molecular biology/bacteriology used for functional analysis of bacterial genomes. The results will allow exploration and better understanding of the molecular mechanisms of bacterial pathogenicity.</p>			