MSc in Taxonomy and Biodiversity

**Project Proposal 2016/17**

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| **Student’s Name** Joseph Craig |
| **Supervisor’s Name** Martin Brazeau |
| **Location of Work** Natural History Museum/Silwood Park Campus (IC) |
| **Project Title** Morphological mammalian phylogeny and the K-Pg extinction |
| **Outline of Work**  The K-Pg extinction (66 Mya) is one of five major mass extinction events. Around the K-Pg boundary the fossil record shows the extinction of the dinosaurs and the radiation of mammals. This is often taught as a classic case of adaptive radiation (mammals) where ecological competition has been removed (dinosaurs). New evidence over the past 30 years has revealed many more mammals existed in the Cretaceous than previously thought as well as new links between birds and dinosaurs themselves that suggest their ongoing dominance ecologically during that period. Two new views coming from this evidence are short and long fuse ideas of mammalian evolution – did mammals exist in numbers for a long or short time before radiating?    The focus of this project will be on two recent studies using the mammalian fossil record (Beck and Lee, 2014; Halliday and Goswami, 2015) and combining their data into a super matrix. This will allow a total evidence approach using all the data and applying it to all the available methods, such as Bayesian and Maximum Likelihood, to come to a definitive conclusion on mammalian phylogeny at the K-Pg boundary. |
| Special Requirements **eg. equipment, chemicals**  ***Note to supervisor: a claim of up to £500 can be made towards expenditure associated with the project, ie. lab consumables for wet projects*** |
| **Collections to be Used** Fossil Mammals **Approved by** |
| **Signature of Student Date** |
| **Signature of Supervisor Date** |
| **Approved by Date** |

Once completed and signed by both the student and the supervisor, please send this form to Alfried Vogler by Friday 21 April 2017.