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| **Project Title** | **Project summary** | **Project detail** | **Selection criteria** | **Outcomes for the intern** |
| **Skull Biomechanics and Ecological Competition and Replacement**  **Supervisor:**  Elsa Panciroli | This project examines how the shape of the tetrapod skull effects its biomechanical properties. It focuses on an extinct group of ‘rodent-like’ mammal predecessors, examining changes in their skull and dentition over time, and the performance of the skull in response to stress, to explore how this might have contributed to their long-term success and eventual extinction. The project utilises CT scan data of Triassic fossils to create digital models for analysis. | In order to accomplish this, the intern will:   * Explore evolutionary hypotheses to explain trends in extinct mammal relatives * Summarise the morphological changes taking place in the skull and dentition of an extinct clade of mammal relatives * Process a micro computed tomographic dataset (microCT) of fossil material * Produce digital models for use in further analyses * Carry out Finite Element Analysis (FEA) to assess material properties of the skull * Present and interpret the results of FEA analyses * If desired, contribute to publication in a scientific journal * Write a report of the project for funders * Full training will be given | Please see website for additional Eligibility criteria oumnh.ox.ac.uk/undergraduate-bursary-scheme  Essential   * Excellent attention to detail * An organised and methodical approach * Good time management * Desire to learn new software and digital processing techniques * Strong self-motivation and ability to work independently without close supervision and as part of a team * Good communication skills   **Desirable**   * Strong interest in working in evolutionary biology/ ecology/palaeosciences * Familiarity with Microsoft Office applications, in particular Microsoft Word and Excel | * Familiarity with skull anatomy of mammals and their predecessors * Gain skills in digital segmentation of CT scan data, and digital model creation * Co-authorship on any publication(s) to result from the work * Particularly valuable for students interested in a PhD/career in research |