2019 YCCSA SUMMER SCHOLARSHIP PROJECT SUBMISSION

This form is for prospective project supervisors to submit their projects to be included in the YCCSA Summer Scholarships Programme for 2019.

It is the purpose of the YCCSA Summer School that any projects submitted are novel and interdisciplinary in nature.

Date	08/01/19
Supervisors' Names and Departments / Affiliation and Contact Email	*Penny Spikins, Archaeology* *Calvin Dytham, Biology* *External: Jennifer French (UCL Leverhulme research fellow in Palaeolithic demography)*
Project Title	*'Becoming human': How did changes in group dynamics affect the emergence of our species?*
Project Description	*Fundamental changes took place in human evolution between around 300,000 and 30,000 years ago.* *We are all familiar with the Neanderthals, but several new species of archaic human, living from 3000,000 to 30,000 years ago have been discovered in recent years. We now see a complex pattern of hominins such as Denisovians, Homo floresiensis, Homo naledi and 'species X' living at the same time, and sometimes in the same place, as early modern humans. By 30,000 years ago only our own species remained.* *Significant differences in intelligence, planning or artistic capacity were once assumed to divide ourselves from other archaic humans. However these differences have recently been eroded. One of the few remaining differences are those of group size (we know that our species lived in larger groups), group composition (we know that our species was more diverse within those groups) and inter-group interactions (there are more transfers of materials between groups).* *Could something as simple as group dynamics have been the key difference which led to our species being the 'last one standing' by 30,000 years ago? Understanding how variables such as propensity for individuals to move between groups or the sizes at which groups split might affect overall group dynamics demands a complex modelling approach.* *In this project we explore how group size, group composition and inter-group interactions might have lead to an evolutionary advantage for early modern humans.*

Required Skills	*Experience in programming and a willingness to tackle agent based modelling would be useful.*
Supervision and Collaboration Arrangements	*Penny and Calvin are both happy to come to YCCSA regularly. Jenny would be in contact via Skype.*
Project Dates	*The summer school runs for 9 weeks, starting on Monday, 08 July 2019 and finishing on Friday, 06 September 2019.*
Other Information	*Surprisingly, group dynamics remain a much under researched area compared to interpretations which suggest that our species was simply more intelligent than our contemporaries.*
References	Biological changes associated with the origins of modern humans Godinho, R. M., Spikins, P., & O'Higgins, P. (2018). Supraorbital morphology and social dynamics in human evolution. *Nature ecology & evolution*, *2*(6), 956. Scerri, E. M., Thomas, M. G., Manica, A., Gunz, P., Stock, J. T., Stringer, C., ... & d'Errico, F. (2018). Did our species evolve in subdivided populations across Africa, and why does it matter?. *Trends in ecology & evolution* 33(8):582-594. Archaeological changes associated with the origins of modern humans D'Errico, F., & Stringer, C. B. (2011). Evolution, revolution or saltation scenario for the emergence of modern cultures?. *Philosophical Transactions of the Royal Society of London B: Biological Sciences*, *366*(1567), 1060-1069. French, J. C. (2016). Demography and the Palaeolithic archaeological record. Journal of Archaeological Method and Theory, 23(1), 150-199. Spikins, P., Hitchens, G., Needham, A., (2017). Strangers in a Strange Land? Intimate Sociality and Emergent Creativity in Middle Palaeolithic Europe. in Warren, G., & Finlayson, B. *The Diversity of Hunter-Gatherer Pasts*, 132-147. Social-cognitive changes with the origins of modern humans Shultz, S., Nelson, E., & Dunbar, R. I. (2012). Hominin cognitive evolution: identifying patterns and processes in the fossil and archaeological record. *Philosophical Transactions of the Royal Society B: Biological Sciences*, *367*(1599), 2130-2140. Hare, B. (2017). Survival of the friendliest: Homo sapiens evolved via selection for prosociality. *Annual review of psychology*, *68*, 155-186.

When complete, please email the form to sarah.christmas@york.ac.uk