UNIVERSITY OF CAMBRIDGE

Institute of Continuing Education

Human diversity from a genetic perspective

Start date	31/05/2019	**End date**	02/06/2019
Venue	Madingley Hall Madingley Cambridge		
Tutor	Dr Mircea Iliescu	**Course code**	1819NRX057

Director of ISP and LL Sarah Ormrod

For further information on this course, please contact Head of Academic Centre Administration, Zara Kuckelhaus zara.kuckelhaus@ice.cam.ac.uk or 01223 746204

To book See: www.ice.cam.ac.uk or telephone 01223 746262

Tutor biography

Dr Mircea Iliescu is currently a researcher at Cambridge University. As a geneticist interested in the history and diversity of human populations, he works in the interdisciplinary space defined by genetics, evolution and anthropology. During his PhD at Cambridge University, which included six months of fieldwork in India, he studied the genetics and evolution of skin colour diversity among the Indian populations. His recent work aims to unravel the evolution of human diversity by focussing on the genomics and evolutionary history of key human traits of medical relevance in populations across the world.

Course programme

Friday

Please plan to arrive between 16:30 and 18:30. You can meet other course members in the bar which opens at 18:15. Tea and coffee making facilities are available in the study bedrooms.

19:00	Dinner
20:30 – 22:00	**Introduction to human evolutionary history.**
22:00	Terrace bar open for informal discussion

Saturday

07:30	Breakfast
09:00 – 10:30	**The study of human evolutionary genetics**.
10:30	Coffee
11:00 – 12:30	**Human migrations around the world through a genomic lens**.
13:00	Lunch
14:00 – 16:00	Free
16:00	Tea
16:30 – 18:00	**Human adaptation to new and challenging environments.**
18:00 – 18:30	Free
18:30	Dinner
20:00 – 21:30	**The evolutionary genetics of key human traits: skin colour, response to pathogens, diet.**
21:30	Terrace bar open for informal discussion

Sunday

07:30	Breakfast
09:00 – 10:30	**The effect of interbreeding with archaic humans (Neanderthals and Denisovans) on present day human diversity.**
10:30	Coffee
11:00 – 12:30	**Unravelling the evolution of human diversity through ancient DNA.**
12:45	Lunch

The course will disperse after lunch

Course syllabus
Aims:

1. To introduce students to the main debates in the study of human evolutionary genetics.
2. To illustrate how human genetics can inform on past migrations and other evolutionary events.
3. To unravel the evolutionary forces that acted on our genes to shape present day human diversity.
4. To discover how ancient DNA research has contributed to our understanding of human evolution.

Content:

Why are we so diverse? Modern humans evolved in Africa more than two hundred thousand years ago. Since then, we have been migrating across Africa and throughout the world and, during this time, we diversified in countless and spectacular ways. We will travel across the world and unravel the human genome to get a glimpse into why and how have humans evolved. First, we will discuss key concepts in the study of human evolutionary history to understand the methods involved and why understanding our evolutionary past has wide relevance for us today. We will then explore how past migrations and other key evolutionary events have shaped human biology leading to diversity traits such as human skin colour, response to pathogens, and tolerance to lactose, and many more. Finally, we will illustrate the power of recent ancient DNA research to open a wider window into the origins of humans and the evolution of our incredible present day diversity.

Presentation of the course:

During this course, we will combine some lectures with relaxed discussions and some more focussed discussions based on material that would be provided. It will be above all a friendly atmosphere of debates where we will uncover together the beauty and fascination of studying human diversity from an evolutionary perspective.

As a result of the course, within the constraints of the time available, students should be able to:

1. Have confidence in discussing main concepts within the field of human evolutionary genetics.
2. Explain how migrations and other population events have shaped present day human diversity.
3. Assess how key human traits have evolved through genetic adaptation to various environments.
4. Understand the impact of ancient DNA studies on wider debates in human evolution.

Reading and resources list

Listed below are texts that might be of interest should you wish to supplement your learning on the course. Any essential reading is marked with an asterisk *

Author	Title	Publisher and date

Website addresses:

https://www.bbc.co.uk/programmes/b09jqtg5

https://www.sciencemag.org/news/2016/05/humans-are-still-evolving-and-we-can-watch-it-happen

Additional information

Venue

Details of how to find Madingley Hall can be found on our website:
http://www.ice.cam.ac.uk/who-we-are/how-to-find-the-institute

Refreshments

Tea and coffee and lunch will be provided. If you have any specific dietary requirements or allergies and have not already advised us, please inform our Admissions Team on ice.admissions@ice.cam.ac.uk or +44 (0)1223 746262.

Note Students of the Institute of Continuing Education are entitled to 20% discount on books published by Cambridge University Press (CUP) which are purchased at the Press bookshop, 1 Trinity Street, Cambridge (Mon-Sat 9am – 5:30pm, Sun 11am – 5pm). A letter or email confirming acceptance on to a current Institute course should be taken as evidence of enrolment.

Information correct as of: 21 May 2019