

## CENTA DTP advertisement

### PhD Opportunity – Unravelling Antimicrobial Resistance in Our Ecosystems

**University:** University of Warwick

**Location:** Centre for Ecology & Hydrology

**Research Theme:** Organisms & Ecosystems

**Keywords:** Microbiome, Antimicrobial Resistance, Genomics, Metagenomics

#### Project Overview:

*Antimicrobial resistance (AMR) threatens global health, emerging from complex ecological interactions. This PhD project, in line with NERC's mission, delves into the ecological factors influencing AMR. By tracking AMR genes across various environments – from soils to freshwater and microbiomes – we aim to uncover patterns, create a metagenomic genome catalogue, and decipher the role of land-water interfaces in AMR transmission. Using state-of-the-art techniques, this research promises to address the global challenge of AMR as outlined below.*

1. Characterise patterns of AMR occurrence and diversity within pristine and anthropogenically influenced soils and freshwaters.
2. Generate a metagenomically-derived genome catalogue to explore the links between microbial taxa (MAGs) across biomes.
3. Track the transport of AMR genes via MAGs at the land-water interface and vice versa.

#### Cutting-Edge Techniques:

*A fusion of fieldwork and lab work, utilizing data from national surveys and hands-on sample collection. DNA extraction, metagenomic sequencing, and advanced data analysis to unveil AMR profiles and gene flow.*

#### Training and Skills:

*Comprehensive training in lab techniques, data analysis, interdisciplinary collaboration, and ethical research will be provided. This PhD equips you for advanced metagenomic research, promoting responsible practices and enabling collaboration across scientific domains.*

#### Timeline:

*This three-year PhD program encompasses academic research, lab work, and advanced data analysis. It also places significant emphasis on personal and professional development, preparing you for a successful post-PhD career.*

#### Why This is Exciting Science:

**Global Relevance:** *AMR is a critical global health issue, and your research will contribute to our understanding of how it spreads in the environment. This knowledge is vital for tackling one of the most pressing challenges in modern medicine.*

**Innovation:** *You will be at the forefront of innovation in AMR dynamics, utilizing state-of-the-art molecular techniques and data analysis methods. This project will equip you with valuable technical skills and expertise.*

**Interdisciplinary Collaboration:** *The project fosters collaboration across scientific disciplines, allowing you to work with experts in environmental science, epidemiology, and ongoing microbial community research at University of Warwick. This interdisciplinary approach is intellectually stimulating and enriching.*

**Real-World Impact:** *Your research will have real-world implications for public health and environmental protection. By uncovering the mechanisms of AMR dynamic and the underlying factors influencing them, you will contribute to the development of future strategies to safeguard the health of diverse ecosystems.*

**Career Opportunities:** *This project will provide you with a unique skill set and research experience highly sought after by academia, industry, and government agencies. It opens doors to a wide range of career opportunities in the growing field of AMR research and environmental science.*

In summary, this Ph.D. project offers an exciting opportunity to be at the forefront of scientific discovery, addressing a global health challenge with real-world relevance. If you are motivated by the prospect of innovative research, interdisciplinary collaboration, and making a tangible impact on public health, we invite you to join us in this exciting journey to unravel the mysteries of AMR.

Join us in exploring the urgent issue of AMR and its impact on our diverse ecosystems. Be part of the solution – apply now!