Data Science for Net Zero

The Efficiency and Productivity Analysis working group, in collaboration with the University of Sheffield (UK) and the University of Santiago de Compostela (Spain), is planning to organise the Summer School titled "Data Science for Net Zero." This immersive and dynamic five-day program is designed specifically for postgraduate data science students eager to apply their skills and knowledge toward addressing one of our most significant global challenges.

Vision and Objectives

The Summer School on Data Science for Net Zero aims to dismantle traditional academic boundaries by offering a genuinely multidisciplinary, inclusive, and student-driven experience rooted in values. It seeks to establish a platform where data science meets pressing environmental issues, nurturing innovation, creativity, and critical thinking in aspiring researchers, data scientists, and sustainability advocates.

Our mission is to challenge students technically while inspiring them to adopt design-centred strategies for problem-solving. This approach will provide a comprehensive view of how data and design merge to develop sustainable, impactful, and scalable solutions. In contrast to typical summer schools, this program encourages students to extend their thinking beyond mere algorithms. Participants will be prompted to tackle challenges from various perspectives, whether by interpreting intricate datasets or by refining user interfaces to enhance the accessibility and clarity of sustainability insights.

Structure and Format

The Summer School will take place over three days (1-3 September, 2025), at the University of Santiago de Compostela, Spain. The program will focus on intensive, team-based problem-solving, allowing students to collaborate on real-world sustainability issues. These issues may involve data-driven projects, where students receive datasets and well-defined environmental problems. Alternatively, the challenges might be design-oriented, prompting teams to rethink data interfaces or develop creative methods for displaying sustainability metrics and outcomes.

The Summer School will culminate in a presentation day, where teams will showcase their projects before a panel of academics, industry experts, and policymakers. Awards and recognitions will be given to outstanding projects, highlighting creativity, feasibility, and potential for real-world impact.

Themes and Challenge Areas

To ensure that students work on problems with real-world relevance, the Summer School will focus on challenge areas directly linked to achieving Net Zero goals. These may include:

- Carbon footprint analysis and visualisation using real-time and historical data

- Predictive analytics for renewable energy demand and production

- Energy efficiency in smart cities and industrial systems

- Optimisation algorithms for logistics and green transportation

- Environmental monitoring using satellite data and IoT devices

- AI-driven simulations for climate adaptation and risk mitigation

- Circular economy modelling and waste stream optimisation

- Redesigning data dashboards to improve stakeholder engagement and decision-making

- Building Responsible AI systems for policy transparency

- Integrating citizen science data with official environmental datasets

Each problem statement will be co-developed with stakeholders from public institutions, local government, non-profit organisations, and industry partners, ensuring a diverse and grounded range of topics for student teams to tackle.

Application

To apply, submit your CV and a brief statement (500 words) explaining why you want to join the Summer School to v.sena@sheffield.ac.uk.

Deadline: 15th of July, 2025.