**Dissertation Topic Outline Form**

**1.Name:**

Minwei Zhao

**2. What is your student number? [This is an 8 digit number, available through Portico]：**

22032089

**3.MSc programme:**

Remote Sensing and Environmental Mapping

**4.Proposed dissertation title [100 characters max]:**

Explaining Environmental Health Outcomes (NHS prescription data) from Satellite Imagery

**5.Proposed field research location (if applicable):**

**None**

**6. Technical/methodological approaches you are likely to use:**

 Advanced statistics  
 Analysis of existing (secondary) data (e.g. global datasets, climate records)  
 Analysis of press and new media  
 Archival/visual methodologies  
 Discourse analysis  
 Ecological field surveying  
 Focus groups  
 GIS  
 Lab-based ecology (i.e. microscope work)  
 Lab-based water and sediment analyses (e.g. chemistry, grain size)  
 Modelling  
 Participant observation/ethnographic methods  
 Policy review  
 Remote sensing  
 Semi-structured interviews  
 Social surveys  
 Unix/Linux computing

**Summary of specific equipment or laboratory requirements (if applicable) [100 characters max]:**

**Without any extend equipment or laboratory**

**Proposed dissertation abstract [300 words max]. Specifically, please outline your main aim and objectives:**

This research utilizes high-resolution Sentinel-2 satellite imagery and comprehensive NHS prescription data to model environmental health outcomes across England. By employing remote sensing (RS) techniques and Geographic Information Systems (GIS), the study will analyze spatial and temporal patterns in health-related prescriptions at the Lower Layer Super Output Area (LSOA) level. Advanced statistical models, including Spatial Lag Models and machine learning algorithms, are applied to unravel the complex interplay between environmental factors, such as air quality and greenery indices, and health outcomes represented by medication prescriptions. This interdisciplinary approach aims to identify key environmental determinants of health, understand regional health disparities, and explore the potential impact of environmental changes on public health. The integration of diverse muti-souced datasets, including sociodemographic variables from the UK census, enables a detailed exploration of how environmental conditions affect health in different communities, with a particular focus on the spatial prevalence of prescriptions and the influence of the environment on public health during the years marked by the pandemic.

**Is this project linked to a specific member of staff?**

**If yes, who?**

**If the project has been listed by a particular member of staff, have you spoken to them about the project and received their permission to select it?**

 Yes  No  No answer

**Is this project linked to a specific external organisation?**

 Yes  No  No answer

**If yes, who?**

**Suggested supervisor:**