**Project Title:** Permeable Pavement on Campus

**Project Description:** Determine the best locations for permeable pavement on the University of Iowa campus, the types of permeable pavement available, costs (including maintenance) estimates, and attempt to quantify the benefits gained from your proposal’s implementation.

**Background:** According to the US Geological Survey, permeable pavement can yield a number of potential benefits, reducing runoff volume and preventing pollutants from entering streams. Various cities are adopting permeable pavement to address stormwater issues. Clean Water Iowa, part of the Iowa Department of Agriculture and Land Stewardship, has awarded grants to various towns and cities across the state to implement permeable pavement, like this case in Storm Lake: <https://www.cleanwateriowa.org/restoring-storm-lake-storm-water>.

Think about where the University of Iowa could have permeable pavement. Things to consider in your project: What makes a parking lot or area of pavement suitable for permeable pavement design? If you design a map, will you consider elevation changes, proximity to stormwater infrastructure, tendency to flood, etc.? How does this add up to suitability modeling? What are the construction costs? What does grant availability look like for this? If you’re interested in quantifying environmental benefits, how will you measure or forecast the benefits in terms of stormwater management and reduced runoff? How do designs differ? How will you monitor their performance? Which surfaces should get the first permeable pavements, if any? How much would this cost to maintain? Compare the environmental benefits using “life cycle” thinking. How does this fit in with campus planning strategies? What about the Iowa City Climate Action Plan and goals?

Depending on your background, one aspect of this project may be more “central” than the others. For example, GIS students may be concerned with the actual spatial location and suitability of the permeable pavement. Engineering students may be concerned with the system processes, selection, construction, and performance of the permeable pavement itself. Finance, economics, or business students may be most concerned with the cost analysis of the pavement as well as financial benefit estimates.

**Helpful Materials:** Urban Demonstration Projects, Clean Water Iowa <https://www.cleanwateriowa.org/urban-1>

Evaluating Potential Benefits of Permeable Pavement, USGS

<https://www.usgs.gov/science/evaluating-potential-benefits-permeable-pavement-quantity-and-quality-stormwater-runoff>

**Desired Outcomes:**

* The final output will vary based upon the class/background of the student. A written report, perhaps supplemented by a visual presentation, of your permeable pavement proposal which answers the questions above, considers practical limitations to their approach, and exercises some creativity is the end goal across topics. GIS project approaches may emphasize the mapped locations more. Finance, accounting, economics, or business students may be asked to generate complex spreadsheets, charts, and models. Engineering students may be concerned with evaluating different designs, performance, and creating models.

**Potential Collaborators/Stakeholders:**

* **Office of Sustainability and the Environment**
* **Facilities/Parking and Transportation**

**Evaluation:** Based upon successful consideration of the questions above and varies based upon the specialization/focus of the project. A thorough attempt at answering most or all the questions in the background to maximize the usefulness of the report to a University official/manager is expected.

**Course Relevance:** GIS, Finance/Business/Economics, Sustainability, and Engineering related courses.