The Geospatial Semester: Engaging K-12, Higher Ed, and Local Communities

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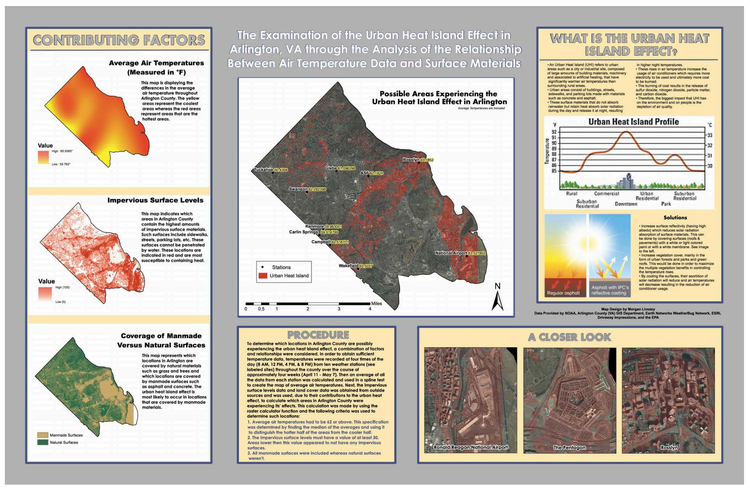
Background

How do we build strong connections between secondary schools, colleges, and universities that attract students interested in Science, Technology, Engineering and Math (STEM) disciplines, and local community partners?

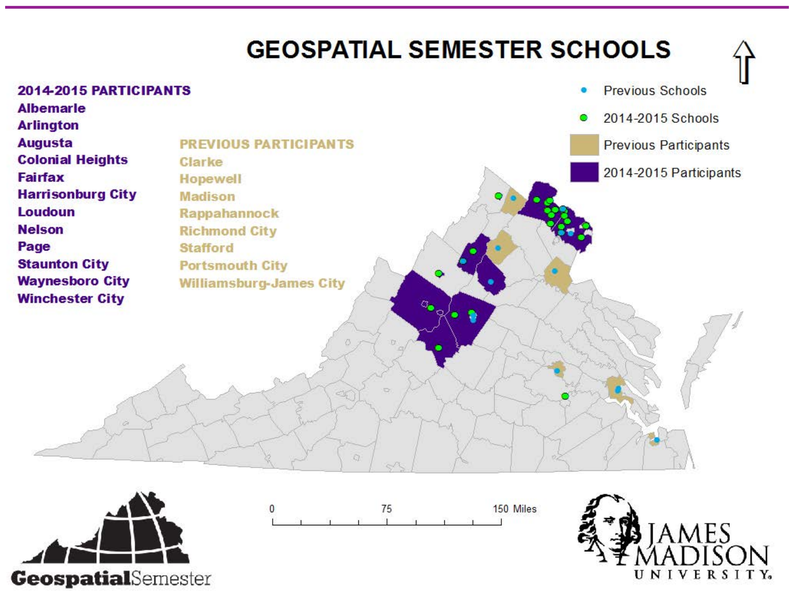
Many secondary schools have adopted Advanced Placement (AP), Dual Enrollment (DE), or International Baccalaureate (IB) as approaches to make their curricula more rigorous. However, quality varies and each program has its challenges. AP students often master the test, but don't carry a rich and enduring comprehension of the material to college. AP classes are also devoid of community engagement. The quality of DE courses vary from excellent to awful, and IB is not well understood.

Mentored Dual Enrollment

To address this challenge, we've pioneered a method we call "mentored" dual enrollment through the Geospatial Semester program. The idea is simple – we use the dual enrollment model, but rather than just appoint the high school teacher as an adjunct and walk away, we mentor the teacher and the students through regular classroom visits and technical and project support.



Student project from Washington-Lee High School, Arlington, VA



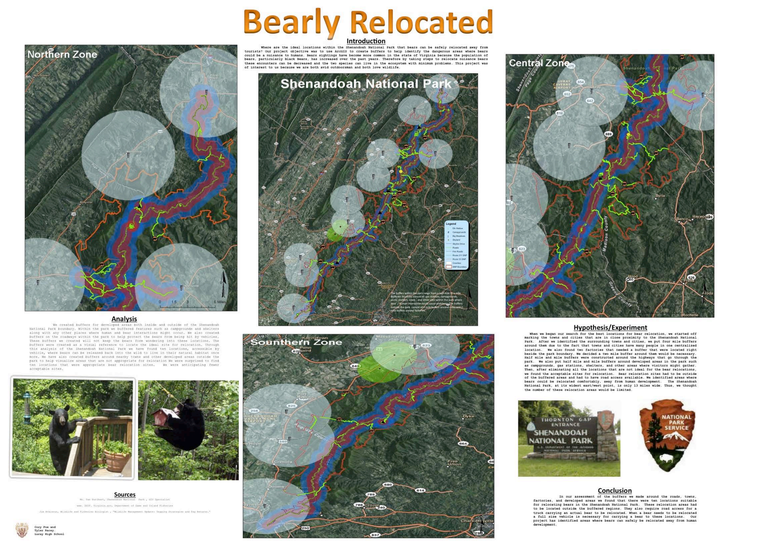
Geospatial Semester

The Geospatial Semester, now in its 11th year, is a semester or year-long mentored dual enrollment effort where high school students learn cutting edge geospatial technologies, such as Geographic Information Systems (GIS), Global Positioning System (GPS), and Remote Sensing (RS). Students apply these technologies to extended local projects while earning JMU credit at a substantial discount. The local projects allow the students to engage with community partners to pursue projects of mutual interest.

- We have served more than 3,000 students in 34 schools in 16 counties.
- Projects have won awards at national conferences.
- Geospatial Semester students were featured at the 2012 ESRI International GIS User's Conference.
- Students have successfully pursued geospatial internships with business and government
- The program has connected JMU with Virginia high schools, leading to increased student interest in JMU's Geographic Science program.
- Sample student projects on this poster show the local connections and are tied to student interest.

Results

- Project-based dual enrollment attracts and motivates a range of students, not just "high achievers". For some, it sparks an interest that leads to higher education.
- We generate nearly 2,000 student credit-hours annually. This funds the staff, and the project is self-sustaining.
- Students develop a deeper interest in both JMU and Geography, leading to program growth on campus.
- Collaborating K-teachers report higher engagement and hob satisfaction.
- Mentored dual enrollment establishes a productive and reciprocal partnership between high school and college faculty, and community partners. This is consistent with best practices from the National Alliance of Concurrent Enrollment Partnerships (www.nacep.org).
- Research indicates that students' dramatically increase their use of spatial language, indicating changes in their spatial thinking. Students also show increases in problem solving skills when compared to classmates not in the Geospatial Semester. This work is in collaboration with D. Uttal and colleagues at Northwestern University.



Student projct from Luray High School, Luray, VA