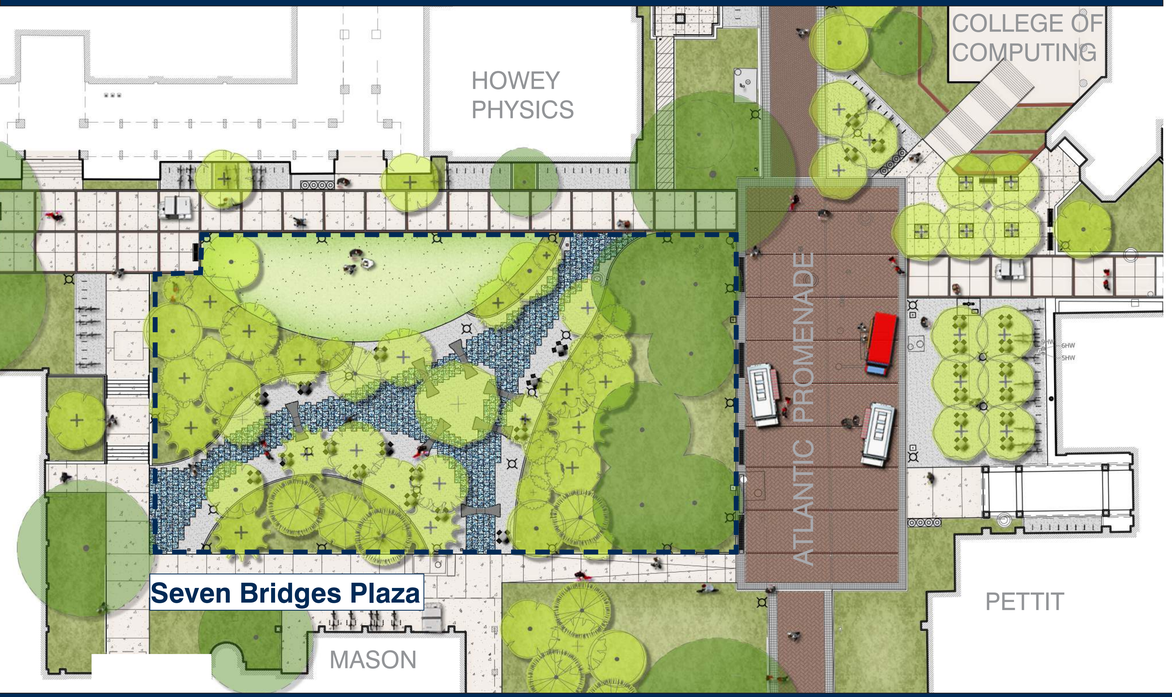
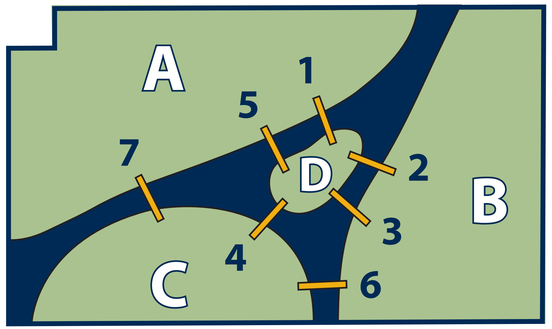
The Seven Bridges of Königsberg

at Georgia Tech



There's a famous problem in mathematics that originated in the layout of the City of Königsberg. Four river banks are connected by seven bridges. The problem was this: ***Can one walk from any one bank and back to it, crossing each bridge once and once only?*** In solving the problem, the great mathematician Leonhard Euler laid the foundation for what became known as graph theory (a cornerstone of modern mathematics and computer science). The Seven Bridges Plaza at Georgia Tech is a rendition of the original problem.

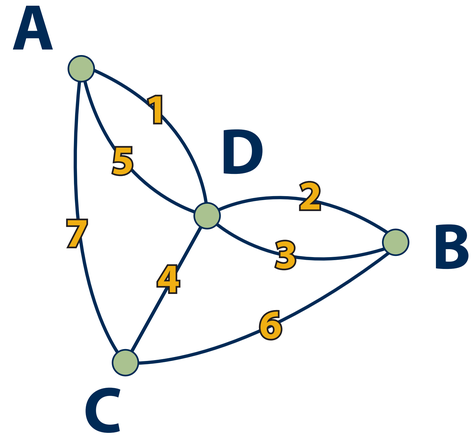


Seven Bridges Diagram

Imagine A, B, C, and D in the diagram below are landmasses, separated by a body of water, and the only way to go between these landmasses is to use a bridge.

1. **Can you cross five bridges and return to the start, without going over a bridge more than once?**
2. **If you don't have to return to where you started, can you cross six bridges?**
3. **Why is it impossible to cross all seven bridges without going over a bridge more than once?**

To learn more about graph theory and Euler's famous polyhedron formula, one of the first theorems of topology, please visit: 7bridges.gatech.edu



Resulting Graph