# CS531 Computational Geometry

## Problem Set 2
## Circle Arrangements

Handed out: Friday, February 7
Due: Wednesday, February 19

## Problem 1. Algorithm

The textbook gives a sweep algorithm for computing the overlay of two polygons. The file arrange.C in the course directory implements a similar algorithm. Explain how to adapt the implemented algorithm to circles. The main issues are that circles are nonmonotone and that two circles can intersect at two points.

## Problem 2. Implementation

Implement your arrangement algorithm on circles by modifying the files in the course directory. State exactly which parts you changed. The input consists of $n$ circles with centers $(x_i, y_i)$ and radii $r_i$ in this format.

```
n
x1 y1 r1 x2 y2 r2 ... xn yn rn
```

Instead of displaying the output, just compute and print the number of vertices, edges, faces, and components, and verify the Euler formula.