Math 4990 Problem Set 6

Partial solutions and comments

Problem	Points	Mean
Exercise 3.2	2	1.9
Exercise 3.3	2	2.0
Exercise 3.4	2	1.4
Exercise 3.7	2	1.9
Problem 5	2	1.9
Problem 6	2	1.4
$\sum$	12	10.6

Exercise 3.2. The point is to show that each edge of the convex hull is present *as an edge* of the triangulation. Most likely you will need to use some version of the Jordan curve theorem to talk about intersections.

Exercise 3.4. Most of you "ignored" collinear points until the end, which is a good strategy. However, some simply said to add in noncrossing edges (in various language) to deal with them at the end. If you do this, you should prove that your algorithm works. Note that you could have just did that from the beginning! The point of the algorithm is to break it down in steps to make it clear that it produces a triangulation.

Problem 6. The easiest way is to first prove (and yes, this requires a proof) that it works for triangles, and then conclude the general case using (a corollary of) Helly theorem, namely Problem 5.