

**ELEN6887**  
**Homework 6**  
Due April 14th

1. Prove Proposition 1 of Lecture 11.
2. In studying the VC dimension we have shown that for the class of classifiers that are indicators of axis-aligned rectangles is 4. Let's generalize this a bit, and instead of considering rectangles consider now arbitrary  $k$ -sided polygons. Compute the VC dimension for this class when  $k = 4$ . How does the result generalize for arbitrary  $k \geq 3$ ? Fully justify your answers.