Problem 11. Let $p = c(\log n)/n$. Prove that if $c > 1$ then a.e. graph in $\mathcal{G}(n, p)$ has no isolated vertices, and that if $c < 1$ then a.e. graph has an isolated vertex.

Problem 12. Let G be a 3-connected graph not isomorphic to K_5. Prove that G is planar if and only if it has no subgraph isomorpic to a subdivision of $K_{3,3}$.

Instructions: You are only allowed to use your own notes, class handouts and the designated textbook. Clarity of exposition, ease of expression, mathematical elegance and overall physical appearance will all be factors in grading. This assignment is due before 3:05PM, Thursday, December 1, 2016.

Please type your solution on one-sided letter size paper in 10pt font or larger. Figures and mathematical formulae may be drawn by hand in black ink. Please submit your work as a single pdf file using the "Assignments" functionality on T-square. At the beginning of the file please include the following honor pledge (or an appropriate modification if you consulted other persons or used other sources):

"I pledge on my honor that this paper represents my own work. I have not consulted with anyone else during the work on this assignment, and I have not used any sources other than my own notes, class handouts and the designated textbook. I understand that making a false statement is a violation of the Georgia Tech honor code."