

MATRL 100A: Structure and Properties I, Problem Set 6

This problem set is due in lecture on **Wednesday, Nov 21st** in hard copy. Write neatly, show your work clearly, and include units in all answers. While you are free to discuss this problem set with your classmates, the product that you turn in must be your own work. Do not copy or paraphrase each other's work or copy solutions from the internet.

Chapter 14: Polymers

1. Draw structures for the following polymers (using the standard linear notation used in the book) calculate the repeat unit molecular weight:
 - (a) polystyrene
 - (b) PTFE
 - (c) PMMA
 - (d) PET
 - (e) polylactic acid (PLA)
 - (f) Nylon 6,6
2. Using linear schematics, sketch portions of linear polyacrylonitrile chains that are:
 - (a) syndiotactic
 - (b) atactic
 - (c) isotactic
3.
 - (a) Determine the ratio of isoprene to acrylonitrile repeat units in a copolymer having a number average molecular weight of 208,542 g/mol and a degree of polymerization of 3500.
 - (b) Which type(s) of copolymer(s) will this copolymer be: random, alternating, graft, and/or block? Why?