APMA 1650 – HOMEWORK 1

Note: The problem sections and numbers refer to the ones in the book *Mathematical Statistics with Applications* (7th edition) by Wackerly, Mendenhall, and Schaefer.

Note: AP1 and AP2 refer to the additional problems below.

> **Section 2.3:** 2.4, 2.6, 2.8, AP1
>
> **Section 2.4:** 2.15, 2.16, 2.18, AP2

Additional Problem 1:

(a) Give an example of three sets A, B, C such that $A \cap B \cap C = \emptyset$ but A, B, C are not pairwise disjoint

(b) Now prove in general that if A, B, C are pairwise disjoint, then $A \cap B \cap C = \emptyset$

Additional Problem 2: Show, using the axioms of probability that

$$P\left(A^c\right) = 1 - P(A)$$