Study Guide for Exam 1

8.7: Distribution functions. Know what is a **distribution function**. Know how to compute **proportion** of population with the studied quantity within certain limits. Know what is the **cumulative distribution function**.

8.8: Probability, mean, and median. Know how to find the **probability** of a quantity falling within a certain range given a distribution function. Know how to compute **mean** and **median**. Know what is the **normal** distribution.

9.2: Geometric series. Know **finite geometric series** and **infinite geometric series**. Know how to compute what is their sum.

10.1: Taylor polynomials. Know how to compute a **Taylor polynomial** of some degree for a function at a given point.

12.1: Functions of two variables. Know what is a function of two variables. Know how to read a table of values. Know how to plot a point in 3-space. Know how to compute **distance** between points. Know what are the coordinate (xy, yz, and xz) planes, know when a point lies on one of them.

12.2: Graphs of functions of two variables. Know what is a **graph** of a function of two variables. Be able to identify which graph belongs to which function. Know how to construct a **cross section** and sketch its graph.

12.3: Contour diagrams. Know what is a **contour diagram**. Be able to identify a hill, a valley, a saddle. Be able to sketch a cross section based on a contour diagram.

12.4: Linear functions. Know what is a linear function. Know how to find linear function if you know a point on the graph and the slopes in x and y directions. Be able to complete a table of values for a linear functions. Be able to find the graph of a linear function (equation of a plane) through 3 points (when it is possible to discover the x and y slopes).

13.1: Displacement vectors. Know what is a **displacement vector** and a **position vector**. Know what is a sum of vectors, what is a scalar multiple of a vector. Know what is the zero vector. Know how to write a vector in **components**. Know $\vec{i}$, $\vec{j}$, $\vec{k}$. Know how to add, subtract, and rescale vectors when written in components. Know how to compute **magnitude** of vectors in components. Know what is a **unit vector** and know how to compute a unit vector in the same direction as a given vector.