Topics for Exam 1

1. **Euclidean Space**

   1.1 Definition of n–Dimensional Euclidean Space

   1.2 Spans, Lines and Planes

   1.3 Dot Product and Euclidean Norm

   1.4 Orthogonality and Projections

   1.5 The Cross Product in $\mathbf{R}^3$

2. **Functions**

   2.1 Vector fields, scalar fields and paths

   2.2 Definition of continuous function

   2.3 Compositions of Continuous Functions

   2.4 Limits and continuity

Relevant chapters and sections in the text: Chapter 2 and Sections 7.1.

Relevant chapters in the online class notes: Chapter 2 and Chapter 3.

Important Concepts: Euclidean space, dot product, orthogonal projections, cross product, continuous function and limits.

Important Skills: Know how to compute projections, find equations of lines and planes, and show that a function is continuous or not.