This is a list of topics you need to be familiar with as covered in class and on the homework for the midterm on Friday along with the sections in the book where they are discussed.

Preliminaries:

- partial differentiation (14.3)
- polar coordinates: (10.3)
    1. convert functions $f(x, y)$ to polar coordinates
    2. polar curves: $r = g(\theta)$
- vectors
    1. basic properties (12.2)
    2. dot product, cross product (12.3, 12.4)
    3. equation for a plane (12.5)
- parameterized curves (13.1)

Double Integrals:

- iterated integrals, Fubini's theorem, partial integration (15.2)
- type I / type II regions, changing order of integration (15.3)
- double integration in polar coordinates (15.4)
- calculating mass, center of mass, moments of inertia (15.5)
- change of variables in two variables (15.9)

Line Integrals:

- line integral of a function with respect to arclength (16.2)
- line integral of a function with respect to x and y (16.2)

Surface Integrals:

- parameterized surfaces (16.6)
    1. surfaces of graphs, e.g. $z = f(x, y)$
    2. planes
    3. the sphere of radius R
- surface integrals of functions (16.7)

Good Luck on the exam!