I. Overview of topics to be covered.
   A. Basic Immunology. The fundamentals of the immune system.

   B. Infectious diseases. Discuss common bacterial, viral, and parasitic, diseases.
   Discuss vaccines. Antibiotic resistance.

   C. Other Immune Topics. Cancer, transplantation, autoimmune diseases,
   psychoneuroimmunology (stress and the immune response).

II. Course structure and layout.
   Discussion Articles Five during semester at 10 points each.
   Poster Project Group project on specific disease 100 points.
   Guest speakers
   Textbook Not required but helpful as a reference.
   Exams Two midterms and a final.

III. Lecture

   Introduction to the Immune system.

   A. Blood/lymph
   Blood circulation carries cells and fluid throughout body.
   Fluid that diffuses into the tissues from the blood is called lymph fluid. The lymph fluid then collects into lymph vessels and drains into very small organs called lymph nodes where it collects and then flows back into the blood at the heart.
B. Cells of the Immune System
Blood consists of red blood cells, white blood cells, and plasma (or serum).

A. Red blood cells (rbcs) also called erythrocytes. Have no immune function.

B. White blood cells are called Leukocytes.
Leukocytes are divided into 1. Polymophonuclear cells (PMNs)
   Neutrophils, Eosinophils, Mast Cells, Basophils,
   2. Lymphocytes
   T cells, B cells, and NK cells.
   3. Monocytes in blood which mature into tissue macrophages

C. Immune Organs.
   Primary organs. Bone marrow and thymus where immune cells mature.

Hematopoiesis is the process of blood cell maturation (occurs in the bone marrow).

Secondary Organs. Where the immune system is activated to fight infections.
Spleen is the blood filter and fights infections that have spread throughout the body.
Lymph nodes filter lymph fluid and are activated locally to fight infections in nearby tissue.

D. Innate vs Adaptive immunity.
Innate immunity has no memory and therefore the innate immune response is the same every time you get infected with a pathogen.

Adaptive immunity has: Specificity Memory Self/nonself discrimination.