Six lectures by Dr. Adeel G. A. Chaudhary
Contents for these lectures are listed below;

A- General Classification
  - Lipids
  - Major Roles of Lipids

B- Fatty acids (Fa) ; Back bone of every lipid
  - Structural properties
  - Measurement of Fatty acids
  - Fatty acids and lipids
    a) Cholesterol and Cholesterol esters
    b) Triglycerides
    c) Phospholipids

  - Clinical usage of fatty acids (Fa)

C- Human Lipids

1. Cholesterol and Cholesterol esters
  - General properties
  - Synthesis of cholesterol
  - Excretion of cholesterol
  - Measurement of total cholesterol
    Specimen requirements

  - Assays:
    A) Non-enzymatic method (Abell-Kendal)
      - Principle
      - Disadvantages of the Non-enzymatic methods:
    B) Enzymatic Method
      - Principle
      - Advantages and disadvantages

  - Normal range values for total cholesterol

  - Use and clinical correlations
    - Reasons for hypercholesterolaemia
      a) Primary
      b) Secondary

    - Reasons for hypocholesterolaemia
      a) Primary
      b) Secondary
2. Triglycerides (TG)
   - Synthesis
   - Measurement of TG
   - Specimen requirements

   - Assays:
     A) Non-enzymatic method (Bantrach Condensation).
     B) Enzymatic method

   - Normal range values
   - Use and clinical correlation

3. Phospholipids; lipid accompanying groups

   a)- Glycerophosphatides-phospholipid
   - Roles of glycerophosphatides- phospholipids

   b)- Sphingolipids
   - Role of sphingolipids

   - Clinical significance of measuring lecithin/ sphingomyelin ratio in amniotic fluid
   - Measurement of Sphingolipids
   - Specimen requirements
   - # Procedure
   - # Interpretations

   - Clinical application of phospholipids and sphingolipids
   - Factors resulting in increased lung surfactants
   - Factors resulting in decreased surfactants

D- Lipoproteins; carriers of LIPIDS

   - Determination of lipoproteins by electrophoresis.
   - Specimen requirement
   - Media for electrophoresis

   - Measurement of HDL-cholesterol
   - Specimen requirements
   - # Principle;
   - Use enzymatic cholesterol measurement
E- Clinical application of Lipid and lipoprotein profile

- Development of atherosclerosis
- Analytes measured
- The Friedwalds formula: to calculate LDL-cholesterol
- LDL-cholesterol levels

- Factors associated with CHD
- Treatment to prevent atherosclerosis and CHD

- Lipoprotein disorders.
- Hyperlipoproteinemia (hyperlipidemia)
  - Primary
  - Secondary

- Causes of Secondary Hyperlipidemia and Dyslipoproteinemia

- Familial (hereditary) Hyperlipoproteinemia
- Fredrickson classification: Type I, II a, II b, III, IV & V.

  a) Type I (lipoprotein-lipase (LPL) deficiency).
  b) Decreased (low) LPL activity (Type I mild)
  c) Familial Combined Hyperlipidemia (FCHL)
  d) Hyperapobetalipoproteinemia
  e) Familial Hypertriglyceridemia
  f) Type V Hyperlipoproteinemia
  g) Dysbetalipoproteinemia (Type III)
  i) Familial Defective Apolipoprotein B-100
  j) Familial Hypoalphalipoproteinemia
  k) Defects in the Synthesis of Apolipoprotein A-I
  L) Defects in Catabolism of Apolipoprotein A4 (Tangier Disease)