

APPLIED CLINICAL ANALYSIS I PHL 464 (1 + 1)

Pre-requisite: PHL 463

Course Description:

This course deals with the biochemical aspects of (endocrine disorders. Special emphasis will be given to the laboratory findings in each disease state and their interpretation. The practical part deals with the analysis of hormones by Enzyme Linked Immuno Sorbent Assay (ELISA) and their metabolites in blood and urine using photo chemical techniques. Other related parameters will be covered whenever possible.

Course Contents:	Hours
1. The Introduction:	1
- Inter-relationships of the endocrine glands.	
- Homeostatic mechanisms	
- Complexity of hormone deficiencies.	
- Physiologic versus pathologic state.	
- Multiple and non-endocrine involvement.	
2. Disorders of the hypothalamus and the pituitary gland:	2
- Hypopituitarism.	
- Acromegaly and gigantism.	
- Hyperprolactenemia.	
- Diabetes insipidus.	
3. Disorders of the thyroid gland:	2
- Thyroid function tests.	
- Hypothyroidism.	
- Hyperthyroidism.	
4. Disorders of the parathyroid glands:	1
- Hypoparathyroidism.	
- Hyperparathyroidism.	
5. Disorders of the adrenal gland:	3
- Adrenocortical insufficiency.	
a) Acute Addisonian Crisis.	
b) Chronic Addison's Disease.	
- Adrenocortical overactivity:	
a) Cushing's syndrome.	
b) The adrenogenital syndrome.	
c) Hyperaldosteronism.	
- Adrenal medula & pheochromocytoma.	
6. Disorders of the testes:	1
- Male hypogonadism	
- Male hypergonadism.	
7. Disorders of the ovaries:	1

- Female hypogonadism.
 - Female hypergonadism.
8. **Disorders of the pancreatic islet cells:** 2
- Diabetes mellitus.
 - Hypoglycemia.

EXAMINATION: 1

Total: 14
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**PHL 464 APPLIED CLINICAL ANALYSIS I (1 + 1)
PRACTICAL ((One Credit Hour)**

Blood Analysis:

- Lab 1** Insulin.
- Lab 2** Glucose tolerance tests & glycated Hb
- Lab 3** Tri-iodothyronine (T₃)
- Lab 4** Thyroxine (T₄)
- Lab 5** Cortisol
- Lab 6** FSH, LH, and/or Prolactin.
- Lab 7** Case studies.

Urine Analysis:

- Lab 8** 17 Ketosteroids
- Lab 9** 17 Hydroxysteroids
- Lab 10** Vanillylmandelic Acid (VMA)
- Lab 11** 5-Hydroxy Indole Acetic Acid - 5(OH)IAA.
- Lab 12** Human Chorionic Gonadotropin (HCG) by different methods(qualitative).

- Lab 13 & 14** EXAMINATIONS.