

Structured International Medical Education (Undergraduates)

Applied Basic Sciences (Physiology)

General Physiological Principles:

- Acid-base imbalance (metabolic and respiratory acidosis/alkalosis)
- Fluid balance and fluid replacement therapy
- Bleeding and coagulation
- Coagulation pathway
- Homeostasis and thermoregulation
- Pain pathways
- Temperature regulation
- Assessment and management of hypothermia

Cardiovascular System:

- Coronary circulation
- Conducting system of the heart
- Cardiac pressure cycle
- Control of cardiac output
- Cardiac valves and their function
- Blood pressure and its control mechanisms
- Management of patients with cardiovascular pathologies

Respiratory System:

- Inspiratory and expiratory patterns
- Normal ventilatory cycle
- Control of ventilation
- Alveolar oxygenation
- Types and causes of respiratory failure
- Intermittent positive pressure ventilation
- Acute (adult) respiratory distress syndrome

Endocrine System:

- Functions of the hypothalamus and the pituitary
- Thyroid gland and hormones
- Hypothyroidism and hyperthyroidism
- Parathyroid gland, hormones and their disorders
- Calcium metabolism and homeostasis

- Glucose homeostasis and diabetes
- Functions of the adrenal cortex
- Functions of the adrenal medulla
- Erythropoietin
- Menstrual cycle and its hormone control

Renal System:

- Functions of the nephron
- Juxta-glomerular system
- Renal autoregulation
- Renin-angiotensin system
- Glomerular filtration rate
- Causes and types of renal failure

Central Nervous System:

- Functions of the cerebral cortex
- Functions of the limbic system
- Functions of the brainstem and cerebellum
- Cerebral perfusion pressure
- Intracranial pressure
- Cerebral autoregulation
- Space-occupying lesions
- Hydrocephalus
- Assessment and management of head injuries
- Ascending and descending tracts of the spinal cord

Gastrointestinal System:

- Gut hormones
- Pancreatic function
- Peristalsis and ileus