**FUNDAMENTALS: MOLECULES TO MEDICINE**

08/06/2012-10/05/2012

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**MODULE TOPICS**

- Cell Structure and Function
- Chromosomes, Fertilization and Early Embryology
- The Four Basic Tissues: Epithelium, Connective Tissue, Muscle & Nerve
- Biochemical, Physiological, Genetic, and Clinical Homeostasis
- Cellular Responses to Disrupted Homeostasis
- Benign and Malignant Disruptions of Homeostasis
- Genetic Basis of Disease
- General Principles of Disease Prevention & Intervention
- Fundamental Concepts of Pharmacology

**MODULE TEACHING METHODS**

- Interactive lectures
- Team Based Learning (TBL)
- Self-study using guided reading
- Online tutorials
- Histopathology teaching laboratories
- Clinical skills laboratories
- Case-based instruction

**CASE-BASED SYNTHESIS TOPICS**

**WEEK 1:** Hemoglobinopathies: Sickle Cell Disease
**WEEK 2:** Down Syndrome
**WEEK 3:** Volume Depletion
**WEEK 4:** Diabetes Mellitus Type I
**WEEK 5:** Myasthenia Gravis
**WEEK 6:** 22q11.2 Deletion Syndrome
**WEEK 7:** Undifferentiated Neck Node Neoplasm
**WEEK 8:** Pheochromocytoma

**WEEKS 3-5:** UP AND RUNNING - MEMBRANES, METABOLISM & MOVEMENT

**WEEKS 6-7:** DERANGEMENT - HOW THINGS GO WRONG

**WEEK 8:** PREVENTION AND INTERVENTION

**MODULE OUTCOMES**

- Students will learn to apply their knowledge of normal cell structure and function to case-based clinical manifestations of human disease.
- Students will integrate material across all basic science disciplines to understand principles of homeostasis and identify disruptions to wellness.
- Students will learn basic skills in applying evidence-based science and current clinical and translational research to their medical decisions.
- Students will learn general principles of preventive medicine and medical, pharmacological, and surgical interventions to address disruptions in homeostasis.