

# GENE-236: Gene Structure and Action

This course explores the molecular process by which the synthesis, expression, and manipulation of genetic material is organized in chromatin and in cis-acting elements governing the process of the 'central dogma'. It will include a critical review of gene organization, regulation of gene expression by hormones, growth factors, and oxidant stress emphasizing signal transduction pathways and the action of ligand-receptor mediated transcription regulators. Attention will be paid to regulation of gene expression, transcription, and translation by RNA interference and natural & synthetic xenobiotics. The goal of this course is to understand the nature and function of gene expression in proliferation, differentiation, and apoptosis in development and disease.

**Credits:** 3

**Program:** Genetics