

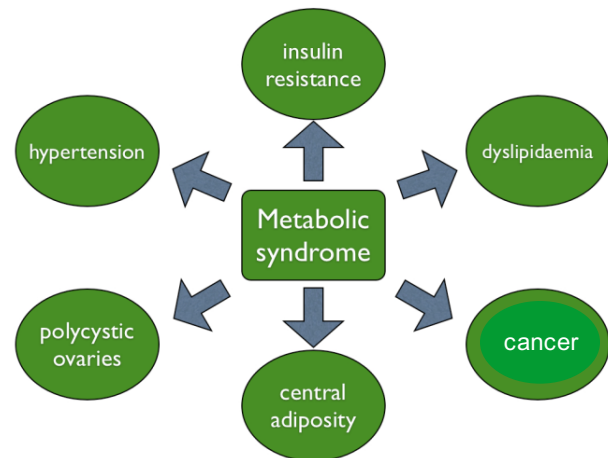
Human Metabolic Disease

MCB 465

Spring Only, 3 hrs

Instructor: J. Kim Kemper; jongsook@illinois.edu

Obesity, diabetes, and metabolic syndrome have exploded into a global epidemic, largely due to physical inactivity and excess high fat diets. This course will examine how lipid and sugar levels and energy balance are controlled in health and how they are misregulated in metabolic disease. This course will also cover emerging concepts and current topics in the regulation of metabolism, including aging, circadian rhythms, AMPK, and microRNAs. Learn about the underlying mechanisms and treatment/management of human metabolic disease!!!



Lecture Topics:

Part I: Overview of Cellular Metabolism and Signaling:

Cellular metabolism and metabolic homeostasis, endocrine and neural control of metabolism, and brief overview of cellular signaling

Part II: Metabolic Disease and Potential Therapy :

Diabetes (type I and II), obesity, leptin biology, PCOS, hypercholesterolemia, atherosclerosis, hypertension, hepatobiliary disease, and orphan nuclear receptors

Part III: Aging and Circadian Control of Metabolism:

Aging genes in lower organisms, Sirtuins and human disease, circadian rhythm, rhythm asynchrony, metabolic disease, and cancer

Part IV: Emerging Concepts of Metabolic Regulation:

AMP kinase, FGFs, autophagy, and new mechanisms controlling metabolism (epigenetic regulation, microRNAs, and post-translational modifications)