



Southern flying squirrels, active at night, reset their circadian clocks daily with quick light-samplings near dusk.



MCB 416: Integrative Neurophysiology Fall 2008

Advanced studies of the neural bases of behavior, incorporating a systems-based approach to the emergence of behavior from the biophysical properties of neurons and the pattern-generating abilities of neuronal circuits. Same as NEUR 426. Prerequisite: MCB 401 or MCB 412, or MCB 414, or consent of instructor (Rhanor Gillette rhanor@uiuc.edu).

How does the brain monitor the body's nutrient stores?

What and why is sleep?

How do even the simplest animals make cost-benefit decisions?

How does the brain assess a potential mate?

How much is "hard-wired" into the nervous system?

And how much comes from self-tuning of the brain to negotiate the demands of genetic nature with the lessons of experience?

How does the brain self-tune (homeostatic plasticity)?

How do patterns emerge from properties of single cells and simple neuronal circuits?

What are the neural origins of our daily and seasonal rhythms?

How can we understand and model the origin of economic behavior from underlying neural assemblies?