THIS IS TENTATIVE AND WILL CHANGE. FOCUS ON THE OBJECTIVE AND CHAPTERS OUTLINED AS EXAMPLES.

Proposed Syllabus for Psych 562, Cog and Beh. Neuroscience II

This proposal is based on a good portion of the back half of Kandel and Schwartz.
Objective: Cover neural systems, which includes function and neural coding within systems.

Objective: This course is for students interested in understanding how individual neurons can code information for the purpose of sensation, perception, cognition and movement. Chapters will cover an overview of systems, brain structures involved and classic experiments demonstrating the electrophysiological data supporting the relation of structures to function. The data discussed will demonstrate how cell activity represents behavior. In the voluntary movement chapter, for example, the classic data from Georgopoulos showing coding of movement direction is supplied as an image. How movement sequences are guided by visual cues and the electrophysiological data demonstrating the relationship are also covered. This course focuses on the relation between neural signals and behavior. A textbook is used for the readings.

Overviews:
Chapter 18: Organization of Perception and Movement

Chapter 19: Integration of Sensory and Motor Function
(possibly skip since this gets close to the Cog Neuroscience course?)

Chapter 21: Coding of Sensory Information

Systems:
Chapter 22, 23, 24: Bodily Senses, Touch, Pain

Chapter 25, 27, 28, 29: Vision: Constructing the visual image, Central Visual Pathways, Perception, Color vision

Chapter 30, 31: Hearing, Sensory transduction in the ear

Chapter 33, 34, 37, 38: Movement: Organization, Motor unit, locomotion, voluntary movement

Chapter 39, 40: Control of gaze and vestibular system
Chapter 43, 43: Central control of movement: Cerebellum, basal ganglia

Chapter 56: Sensory experience and fine tuning connections

Chapter 62, 63: Learning and memory, cellular mechanisms of learning and memory.

23 chapters at two chapter per week covers 11 ½ weeks, leaving time for exams.

The parts not covered are

covered in 561:
  aging, disorders of mood
  autonomic nervous system
  emotional states and feelings

what is not covered:
  Development of the nervous system
  Motivation and addictive states (which would probably fit better in 561)
  Sleep and dreaming