

# MCB 416, Neuroethology (Integrative Neuroscience)

## Fall 2011

Methods in Neuroscience; Fundamental Concepts in Behavior; Behavioral Economics; Evolution of Nervous Systems and Behavior; Evolution in Complexity of Brain and Behavior in Invertebrates and Vertebrates; Evolution of the Mammalian Brain and its Functional Neuroanatomy; General Concepts in Neurotransmission and Neuromodulation; Emergence of Patterned Neural Activity and Central Pattern Generators; Pattern Generating Mechanisms and Rhythmic Behaviors; Motor Control; Lateral and Recurrent Inhibition: Pattern Analysis, Templating, Integration and Attentional Mechanisms; Fundamentals of Sensory Systems: Audition, Vision, Olfaction and Taste, Kinesthesia and Proprioception; Pain; Biological Rhythms, Behavior and the Nervous System; Sleep; Stress; Learning rules at Cellular/Circuit Levels; Behavioral Hierarchies and Cost-Benefit Decision Mechanisms; Simple Interactions of Neuronal Circuits and Behavioral Choice; Neuronal Circuits, Nutrient Stores, Behavioral Arousal, Reproduction and Choice; Motivation and Reward; Valuation, Reward and Risk Assessment in the Nervous System; Neuroeconomics of Decision; The Neural Circuits and Mechanisms of Addiction; Roots of Conscience and Consciousness; Modeling Brain and Behavior; Interfacing the Brain and Machines

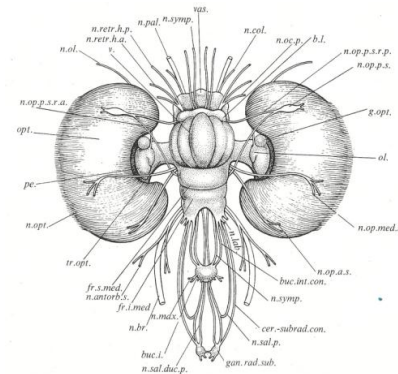
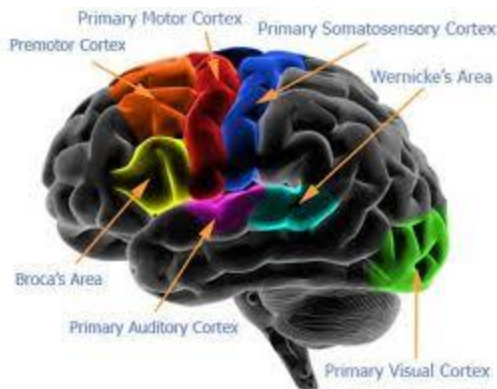
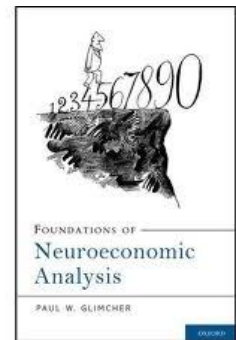


FIG. 1.6. Diagrammatic drawing of central nervous system of *Octopus* as seen from above (modified from Young 1964).

