MOVESCI 426. Cognitive Neuroscience of Action (3). *Prerequisite: MOVESCI 320*. This course focuses on the neuropsychology of movement. Topics include: handedness, reaching, motor timing, skill acquisition and bimanual coordination. We will discuss both the strategies used to control these behaviors, and their underlying neural substrates. We will read and discuss papers that analyze movement kinematics, as well as functional neuroimaging and neural recording research. The reading materials for the course will include current papers, combined into a course pack. Students will be evaluated using quizzes, exams, participation in class discussions, and a term paper.

Part 1 of the course will provide an introduction to (and / or review of) nervous system structures that support motor control. This will provide a foundation of knowledge regarding the underlying neurophysiology of movement. This basic knowledge will be enhanced and developed as we discuss the control of specific goal-directed behaviors throughout the semester. In Part 2, we will discuss the neural and behavioral bases of handedness, and of several common actions-reaching, bimanual movements, and sequences of actions. This section will focus on the functional specificity of the neural control of movement; we will discuss which interconnected brain regions and pathways support these classes of movement. In the final section of the class, we will examine the plasticity and adaptive capacity of the motor control system, which allows for motor learning and some recovery of function in the face of injury, aging, or disease.

Questions regarding this course may be emailed to Rachael Seidler (rseidler@umich.edu).