Course Description: Tutorials cover specialized topics in neuroscience in depth in small group setting. Courses consist of directed reading, take-home assignments, tutorials, and discussion. The topic for the 2016-17 academic year is Experimental Design and Biostatistics for Neuroscience.

Credit Hours: 1

Course Prerequisites: Must be a student in good standing in the Program in Neuroscience. This course is required for all first year students in the Program in Neuroscience and elective for all other students in the Program in Neuroscience.

Course Dates: Spring semester, Wednesdays and Fridays, starting on March 8, 2017.

Course Times: 2:00 to 3:30p

Course Location: G-336

Instructor: Course Directors - James Shaffery, Ph.D., G-111.2, x46684, jshaffery@umc.edu; and Lique Coolen, Ph.D., R617-1, x58761, lcoolen@umc.edu. Faculty Instructors - Faculty in the Graduate Program in Neuroscience.


Course Overview: Tutorials in neuroscience is intended to provide students with advanced understanding of experiment design, need for rigor and reproducibility of experiments and data analysis, and a minimum proficiency in the use of statistical analysis and its execution on the GraphPad software program. Students will study experimental designs and use of biostatistics in neuroscience, including an examination of the new NIH guidelines for Rigor and Reproducibility in neuroscience under guidance of Faculty in the Program in Neuroscience. The course is presented in five modules, during five consecutive weeks. Typically, course meetings on Wednesday will be didactic instruction on statistical test description, including elucidation of the logic for the test and test assumptions. An example data set is then assigned and the student is expected to complete the assignment and analyze the data by Friday class meeting. Fridays are devoted to reviewing the assignment and addressing concerns implementing the analysis on the GraphPad program.

Course Objectives: Upon completion of this course:

1. Students will have participated in the Society for Neuroscience's online training webinar on Scientific Rigor, "Promoting Awareness and Knowledge to Enhance Scientific Rigor in Neuroscience."

2. Students will be able to develop neuroscience experiments using appropriate experimental designs.
3. Students will have acquired basic knowledge of biostatistical analysis methods.
4. Students will be able to apply this basic knowledge to their area of research.
5. Students will become familiar with the use of statistical analysis software.

**Grading Policy and Rubric.**

Students are graded based on levels of preparedness prior to each class and levels of participation in each class. Students will be graded (Pass/Fail) in each week based on completion of the assigned analysis.

**Course Policies:**
Attendance of the classes is mandatory. Students are expected to read the assigned papers and complete assigned exercises. Unexcused absence will result in a Fail-grade. If students can’t attend a session for valid reasons such as illness or conference attendance, the course director needs to be notified prior to the session and a make-up assignment will be discussed.

**University Policies:**
Students with disabilities (ADA) statement: Refer to UMC policy
Academic honesty statement: Refer to UMC policy