

**UNIVERSITY OF FLORIDA  
COLLEGE OF MEDICINE SYLLABUS  
NEUROSCIENCE**

**GMS 6029 Experimental Design and Analysis (1 credit hour)**

Spring: 2023

Delivery Format: in person/hybrid if possible; Zoom otherwise

Instructor Name: Ron Mandel

Room Number: L4-120

Phone Number: 352-294-5547

Email Address: [rmandel@ufl.edu](mailto:rmandel@ufl.edu)

Office Hours: on request

Graduate Assistant: NA

Preferred Course Communications: email or via Canvas

Prerequisites *Minimum undergraduate statistics course*

**Purpose and Outcome:**

The purpose of this journal club is to explain the place statistics have in our research endeavor. In addition, we will put effort into evaluating whether real statistical analyses in important neuroscience publications actually evaluate the reported experimental design. We also discuss experimental design successes and failures in important neuroscience papers. Finally, we discuss how to more effectively present and analyze your own data and evaluate how those features were carried out in high value neuroscience publications.

**Course Overview:**

In general, I start the course with 2 weeks of issues currently affecting the analysis of data followed by a week where I evaluate a recent publication to demonstrate to students the expectations of their presentations. Then, students sign up for presenting published papers that are 1) approved prior to their presentation and 2) are important to their area of research or of general neuroscience interest.

**Relation to Program Outcomes:**

In my humble opinion, experimental design and understanding how to analyze your own data and understanding if important neuroscience findings are trustworthy is extremely important for a graduate neuroscience education.

**Course Objectives and/or Goals:**

The objective of the course at minimum is to teach students to critically read results and discussion sections of neuroscience research papers. A second objective, which is more difficult to achieve in this setting, is to teach students appropriate experimental designs and analysis of results.

**Instructional Methods:**

Instructor and student presentations with lively class discussions

**Blended Learning:**

*Not applicable*

*What is expected of you?*

You are expected to actively engage in the course throughout the semester. You must come to class prepared by completing all out-of-class assignments. This preparation gives you the knowledge or practice needed to engage in higher levels of learning during the live class sessions. If you are not prepared for the face-to-face sessions, you may struggle to keep pace with the activities occurring in the live sessions, and it is unlikely that you will reach the higher learning goals of the course. Similarly, you are expected to actively participate in the live class. Your participation fosters a rich course experience for you and your peers that facilitates overall mastery of the course objectives.

**Description of Course Content:**

**Topical Outline/Course Schedule**

Week	Date(s)	Presenter	Topic(s)	Readings
1	TBD	Mandel	Organization meeting/course desc	
2	TBD	Mandel	The problem with P values	<a href="#">Nuzzo, R. 2014</a> <a href="#">Nuzzo, R. ASA statement</a> <a href="#">5 ways to fix stats</a> <a href="#">Odds are it's wrong</a>
3	TBD	Mandel	The interaction term in Neuroscience	<a href="#">Nieuwenhuis</a>
4	TBD	Mandel	First research paper presentation	TBD
5	TBD	Student TBD	TBD	TBD
6	TBD	Student TBD	TBD	TBD
7	TBD	Student TBD	TBD	TBD
8	TBD	Student TBD	TBD	TBD

9	TBD	Student TBD	TBD	TBD
10	TBD	Student TBD	TBD	TBD
11	TBD	Student TBD	TBD	TBD
12	TBD	Student TBD	TBD	TBD
13	TBD	Student TBD	TBD	TBD
14	TBD	Student TBD	TBD	TBD
15	TBD	Student TBD	TBD	TBD

**Course Materials and Technology:**

For technical support for this class, please contact the UF Help Desk at:

- [Learning-support@ufl.edu](mailto:Learning-support@ufl.edu)
- (352) 392-HELP - select option 2
- [UF eLearning](#)

**Academic Requirements and Grading:**

**Assignments:**

**Grading:**

S/U determined by the instructor, students are expected to participate in class and present to the class 1 or more times

More information on UF grading policy may be found at:

<http://gradcatalog.ufl.edu/content.php?catoid=10&navoid=2020#grades>

**Exam Policy:**

NA

**Policy Related to Required Class Attendance:**

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

Excused absences must be consistent with university policies in the Graduate Catalog (<http://gradcatalog.ufl.edu/content.php?catoid=10&navoid=2020#attendance>). Additional information can be found here:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

### **Student Expectations, Roles, and Opportunities for Input:**

As stated above, students are expected to prepare for class by reading the assigned papers prior to the class period. When it is a student's turn to present a paper to the class, the student should submit the paper to the instructor at least 5 days prior to class to obtain approval. Then, the student is expected to post the paper or a link to the paper in Canvas at least 3 days prior to their presentation so that other students can have time to prepare by reading the paper. Finally, all students are expected to participate in class discussions. This class does not go well when students do not come with questions about experimental design, analysis of the data, or the interpretation of the data in the assigned paper.

### **Expectations Regarding Course Behavior:**

Students are expected to treat everyone including the instructor with respect. Free discussion is encouraged but should never be personal or demeaning.

### **Academic Integrity:**

Students are expected to act in accordance with the University of Florida policy on academic integrity. As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge:

**“We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.”**

You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied:

**“On my honor, I have neither given nor received unauthorized aid in doing this assignment.”**

It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For additional information regarding Academic

Integrity, please see Student Conduct and Honor Code or the Graduate Student Website for additional details:

<https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>

<http://gradschool.ufl.edu/students/introduction.html>

**Please remember cheating, lying, misrepresentation, or plagiarism in any form is unacceptable and inexcusable behavior.**

### **Online Faculty Course Evaluation Process:**

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at

<https://gatorevals.aa.ufl.edu/students/> . Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

### **Policy Related to Guests Attending Class:**

Only registered students are permitted to attend class. However, we recognize that students who are caretakers may face occasional unexpected challenges creating attendance barriers. Therefore, by exception, a department chair or his or her designee (e.g., instructors) may grant a student permission to bring a guest(s) for a total of two class sessions per semester. This is two sessions total across all courses. No further extensions will be granted. Please note that guests are **not** permitted to attend either cadaver or wet labs. Students are responsible for course material regardless of attendance. For additional information, please review the [Classroom Guests of Students policy](#) in its entirety.

### **Support Services:**

#### **Accommodations for Students with Disabilities:**

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the Disability Resource Center by visiting <https://disability.ufl.edu/students/get-started/> . It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester. The College is committed to providing reasonable accommodations to assist students in their coursework.

#### **Counseling and Student Health:**

Students sometimes experience stress from academic expectations and/or personal and interpersonal issues that may interfere with their academic performance. If you find yourself facing issues that have the potential to or are already negatively affecting your coursework, you are encouraged to talk with an instructor and/or seek help through University resources available to you.

- The Counseling and Wellness Center 352-392-1575 offers a variety of support services such as psychological assessment and intervention and assistance for math and test anxiety. Visit their web site for more information: <http://www.counseling.ufl.edu>. On line and in person assistance is available.
- You Matter We Care website: <http://www.umatter.ufl.edu/>. If you are feeling overwhelmed or stressed, you can reach out for help through the You Matter We Care website, which is staffed by Dean of Students and Counseling Center personnel.
- The Student Health Care Center at UF Health is a satellite clinic of the main Student Health Care Center located on Fletcher Drive on campus. Student Health at UF Health offers a variety of clinical services. The clinic is located on the second floor of the Dental Tower in the Health Science Center. For more information, contact the clinic at 392-0627 or check out the web site at: <https://shcc.ufl.edu/>
- UF Health Emergency Room / Trauma Center: For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32698, [ufhealth.org/emergency-room-trauma-center](http://ufhealth.org/emergency-room-trauma-center).
- University Police Department: Visit [police.ufl.edu/](http://police.ufl.edu/) or call 352-392-1111 (or 9-1-1 for emergencies).
- Crisis intervention is always available 24/7 from:

Alachua County Crisis Center:

(352) 264-6789

<http://www.alachuacounty.us/DEPTS/CSS/CRISISCENTER/Pages/CrisisCenter.aspx>

Do not wait until you reach a crisis to come in and talk with us. We have helped many students through stressful situations impacting their academic performance. You are not alone so do not be afraid to ask for assistance.

### Academic Resources

**E-learning technical support:** Contact the UF Computing Help Desk at 352-392-4357 or via e-mail at [helpdesk@ufl.edu](mailto:helpdesk@ufl.edu).

**Career Connections Center:** Reitz Union Suite 1300, 352-392-1601. Career assistance and counseling services [career.ufl.edu/](http://career.ufl.edu/).

**Library Support:** [cms.uflib.ufl.edu/](http://cms.uflib.ufl.edu/) ask various ways to receive assistance with respect to using the libraries or finding resources.

**Teaching Center:** Broward Hall 352-392-2010 or to make an appointment 352 392-6420. General study skills and tutoring. [teachingcenter.ufl.edu/](http://teachingcenter.ufl.edu/)

**Writing Studio:** 2215 Turlington Hall, 352-846-1138. Help brainstorming, formatting, and writing papers. [writing.ufl.edu/writing-studio/](http://writing.ufl.edu/writing-studio/)

**Student Complaints On-Campus:** [sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/](http://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/)

**On-Line Students Complaints:** [distance.ufl.edu/student-complaint-process](http://distance.ufl.edu/student-complaint-process)