

JMP AS A RESEARCH TOOL - AGR 6932
GNV1[?????] (Online main campus synchronous),
REC1/[?????] (REC synchronous),
AME1/[?????] (Online Agroecology synchronous/asynchronous)

Session Fall 2023

Credit Hours: 01

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This is a refresher course for people who have a basic working knowledge of experiment design and data analysis but are looking for an easy-to-use tool to accomplish day-to-day analytical tasks. The course consists of 7 2-wk modules, where a basic data analysis topic will be discussed in the first week and followed by practical training on how to accomplish this task during the second week.

ALL SECTIONS

NOTE: ALL COMMUNICATION will be through CANVAS. This protects both sides in any discussion as CANVAS provides a track record of a given exchange. I will generally respond quickly anytime between 5 am and 8 pm.

Office hours: by appointment through CANVAS and UF Calendar Function.

Time: Thursdays Periods 04 and 05 (10:40 – 12:35 am). Please keep the 2nd hour free so we have the option to meet every other week if that better fits with your schedule.

Lectures and Discussion On-campus location will be 426 McCarty Hall C with synchronous delivery via the permanent Zoom link <https://ufl.zoom.us/j/7485382243>. All sessions will be recorded.

Hands-on group discussion sessions: Video conferencing via Zoom. Students will be able to sign up for a group during first week of class. One of the requirements is that students will have to have a camera so participants can see each other. A mutually agreeable time will be set during the first week of class.

Software: JMP 17, which is available for Windows and Mac from the UF website. We will use the PRO version.

<https://software.ufl.edu/software-listings/sas-jmp.html#download>

Prerequisites:

1. Working knowledge of basic statistical procedures.
2. Basic knowledge of experiment design and data analysis

Learning objectives:

1. Refreshing student's knowledge of experiment design and data analysis
2. Ability to convert data into a coherent analysis
3. Enable students to design an experiment and analyze it using JMP.

Structure:

Each 2-wk module consists of an introductory lecture that serves as a refresher, a demonstration of an analytical technique, a discussion forum, and a practical assignment that reinforces the concepts presented in class.

Schedule and Topics:**Module 1: Data Organization Skills**

Lecture: From the field/greenhouse/lab to data analysis

Discussion: Students general experience with experimental data

Reading: Data Organization in Spreadsheets

Testing: Testing current knowledge of simple statistical concepts.

Module 2: One-way ANOVA and Simple Linear Regression

Lecture: ANOVA and Regression are two aspects of a Linear Model

Discussion: Students general experience with data

Demonstration: ANOVA and Regression of data from a simple CRD experiment

Assignment: ANOVA and Regression analyses for new data

Module 3: Two-way ANOVA for Blocked Experiments

Lecture: Why do we organize experimental units into blocks?

Discussion: How did you go about analyzing RCBD experiments?

Demonstration: ANOVA of data from a blocked experiment

Assignment: Two-way ANOVA for new data

Module 4: Planning an experiment

Lecture: Randomization is the key to everything we do.

Discussion: Current Student's practices regarding randomization

Demonstration: Using the JMP DOE to randomize a simple RCB

Assignment: Using the JMP DOE to randomize a variety trial in a RCB ($r=4$)

Module 5: Factorial Treatment Designs (FTDs)

Lecture: FTDs are a win-win proposition – interactions are important

Discussion: Students experience with conducting and analyzing FTDs

Demonstration: Analysis of a factorial experiment using different platforms within JMP

Assignment: Analysis of a factorial experiment

Module 6: Multi-level designs

Lecture: How to organize factorial treatments when space is limited

Discussion: Students experience with conducting and analyzing split plots

Demonstration: Analysis of a split plot experiment

Assignment: Analysis of a split plot experiment

Module 7: Observations taken over time or by depth

Lecture: From a Split-plot in time analysis to repeated measures

Discussion: Students experience dealing with observations taken over time

Demonstration: Analysis of a split plot in time experiment

Assignment: Analysis of a split plot in time experiment

Course Requirements:

- 1. Assignments (60 points):** **Assignments** may take on different forms, e.g., a design problem, a literature discussion, etc. Depending on the assignment, they may have to be completed individually or by groups. The point value of a given assignment will depend on the difficulty of that assignment. A term is quite short in the great scheme of things, and we need to move at a pretty good clip. There are some basic rules: **(1)** Assignments will **only** be accepted through CANVAS or Dropbox (if specified as such). **(2)** Assignments must be turned in by the deadline given. If an assignment is turned in late, a penalty of 10% may be assigned. **(3)** If I request a correction, you have at least 2 days to turn in that correction. These assignments will be in the form of problem sets, literature reviews, group discussion, etc.

Performance Evaluation:

Required performance measures are given in the following table. Assignments turned in late be assessed a penalty of 5 point per day. If you foresee a problem (Field trips in other classes, Field research requiring you to be away from campus, Jury Duty, National Guard Duty, etc.) please see me beforehand. I am generally very accommodating, but it is not my job to anticipate your needs.

Homework / Projects/ Discussion	Points
Testing existing knowledge in Module 1	5
Discussion contributions: 7 @ 5 points	35
Assignments 6 @ 10 points	60
TOTAL MAXIMUM POINTS	100

The course will follow the customary +/- grading scale, where 95 - 100 = A, 90 - 94.9 = A-, 87 - 89.9 = B+, 83 - 86.9 = B, 80 - 82.9 = B-, 77 - 79.9 = C+, 73 - 76.9 = C, 70 - 72.9 = C-, 67 - 69.9 = D+, 63 - 66.9 = D, 60 - 62.9 = D-, and 0 - 59.9 = E.

Academic Honesty

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 assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g., assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. 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 more information regarding the Student Honor Code, please see: <https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code>.

Services for Students with Disabilities

As a professor with a physical disability, whose needs have been addressed by the University, I am sensitized to disability issues. I will do everything within my power to help you succeed. If you have a need, I would also strongly encourage you to seek assistance from the Dean of Students Office (DSO). The Disability Resource Center (DRC) within that office coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation

to the Instructor when requesting accommodation. 0001 Reid Hall, 352-392-8565,
<https://www.dso.ufl.edu/drc/students>

Campus Helping Resources

Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575,
www.counseling.ufl.edu/cwc/

Counseling Services Groups and Workshops Outreach and Consultation Self-Help Library
Wellness Coaching

Career Resource Center, First Floor JWRU, 392-1601, www.crc.ufl.edu/

Software Use:

All faculty, staff and students at the University of Florida are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

In-Class Recording

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A "class lecture" is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To "publish" means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third-party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action

instituted by a person injured by the publication and/or discipline under UF Regulation 4.040
Student

Online 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/> .

You may complete the evaluation as soon as it becomes available. The results will not be available to your instructor until the final exam period has passed.