Design and Analysis in Education I

ERMA 7300

3 credit hours

Course Syllabus – Fall 2022

**Instructor:** David T. Marshall, Ph.D.

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**Office Hours:** Tuesdays 12:30-2:30pm by appointment

**Meeting Time and Space:**

Mondays 5:00-7:50pm – 3430 Haley Center

**Course Description and Objectives**

The purpose of this course is to provide students with a conceptual understanding of the basic methods of descriptive and inferential analysis.

By the end of the semester, students should attain the following learning goals:

1. Solve educational research problems using statistical tests of significance.
2. Make accurate interpretations of statistical findings.
3. Prepare a written summary of data analysis results in APA format.
4. Review published research literature to examine the application of measurement, design, and analysis procedures.

**Texts**

**Required**

There is only one required text for this course. Other readings will be assigned and provided as needed.

Salkind, N.J., & Frey, B.B. (2020). *Statistics for people who (think they) hate statistics.* (7th ed.). Sage.

ISBN-13: 978-1544381855; ISBN-10: 1544381859

**Recommended**

American Psychological Association. (2019). *Publication manual of the American Psychological*

*Association (*7th ed.). American Psychological Association.

## Software

We will be using SPSS this semester. You can use SPSS via the Virtual Lab, use computers in the LRC or elsewhere on campus with the software installed, or you can purchase a license. Information regarding software access can be found in the Announcements section of Canvas.

## Course Activities and Deliverables

**Course Format**

This course will be taught in a mostly hybrid format. Except for the first two weeks of class, students will attend every other week, corresponding to their assignment to A/B week groups. Group assignments can be found on Canvas under the Announcements tab. For example, a student assigned to the A group will attend class on September 12 but not on September 19, when B group students will be expected to attend. Prior to attending each class session, students will be expected to watch all assigned Panopto lectures, complete all assigned readings, and submit that week’s practice problems (described below).

**Class Attendance**

Excellent attendance is expected. If you are not going to be able to attend class, it is your responsibility to inform the instructor prior to the start of class and obtain notes from another student. This is a face-to-face section, and no technology fee is assessed. As such, students may not attend class via Zoom.

**Practice Problems**

For each module, you will need to complete a practice problems assignment. These are graded for completion and are due by 8:00am on the Monday prior to your class meeting.

**Assignments**

Throughout the semester, students will complete five lab assignments in SPSS. These can be completed individually or with a partner. The lowest of the five grades will be dropped; however, it must be noted that all assignments must have been attempted in order to be eligible to have one dropped.

**Exams**

There are two examinations in the course – a midterm and a final. Both exams are to be completed outside of class, and both will be distributed at least one week prior to the due date. Students may use any of the course readings, notes, or web-based resources, and they may rely on their own expertise to complete the exams. Students may not consult the expertise of anyone else, or provide assistance to another student in the class. These are to be completed individually.

The first exam will cover all of the material from the start of the semester through two-sample tests of significance. The second exam will cover the rest of the material presented in the semester, including ANOVAs.

**Data Analysis Project**

Finally, you will be completing a data analysis project this semester. This can be completed individually or in pairs. You will be using the National Longitudinal Youth Survey, 1997 cohort (NLYS-97) for this. You will identify a topic of interest that can be investigated using the variables contained within the NLYS-97, craft specific research questions, and analyze the data. There will be four assignments associated with this: (1) a topic paper, (2) a Zoom presentation, (3) peer feedback on presentations, and (4) a final data analysis project paper. Additional details for this project will be posted in Canvas.

**CITI Training**

The Collaborative Institutional Training Initiative (CITI) offers training in conducting ethically sound research. Most institutions of higher learning, including Auburn University, require individuals to be up-to-date with their CITI training to conduct research. **You should not pay anything to complete this.** For this course, you will be required to:

1. Register with CITI at [www.citiprogram.org](http://www.citiprogram.org)
2. Choose to register as a member of an affiliated organization; type in Auburn University.
3. Select Human Subjects courses, and select the **IRB #2 Social and Behavioral Emphasis – AU Personnel – Basic/Refresher** course.
4. You will also be asked to select at least one additional course that aligns with your research interests. Completing an additional course is not a requirement for this class, but is recommended.
5. Upload your certificates of completion to Canvas by September 12, 2022.

**Grading Procedure**

The grade for each assignment is criterion-referenced. Overall grades will be determined by the following weights:

Assignments 30%

Practice Problems 15%

Exams 35%

Data Analysis Project 20%

**Grading Scale**

100 – 90 A

89.99 – 80 B

79.99 – 70 C

69.99 – 60 D

59.99 and below F

**Late Assignments Policy**

Late deliverables will receive a deduction of 10% for each day they are late. The only exceptions will be documented emergencies and situations approved with the instructor in advance of the due date. No work will be accepted that is more than one week late without prior approval from the instructor.

Open communication is the key. If you have a situation that interferes with your ability to complete an assignment on time, it is your responsibility to contact the instructor as soon as you are aware of this. Life happens, and individual circumstances will be considered on a case-by-case basis.

All work is expected to be typed. The late penalty will be applied to hand-written work and then turned in late in a typed format. All electronic documents submitted for the course are expected to be in Word format.

**COVID-19 Related Policies**

This class will abide by all campus directives related to COVID-19, including those related to facial coverings.

If you have symptoms, please inform the instructor, and do not come to class. These absences will not count against you. Again, open communication is the key. Please be kind, exercise grace, and be flexible as we navigate another semester. Most of all, please keep yourself and others safe.

To report a positive COVID-19 test result or to consult campus policies related to the pandemic, please visit the COVID-19 Resource Center website: <https://auburn.edu/covid-resource-center>

**Incompletes and Withdrawals**

Grades associated with incomplete course work or withdrawal from class will be assigned in strict conformity to University policy (see Auburn University Bulletin). If you wish to drop this course you may do so by the 10th class day with no grade assignment. From the 10th day of class to mid-quarter a W (withdrawn-passing) grade will be recorded in your transcripts. After this period withdrawal from the course will only be granted under unusual circumstances and must be approved by the Dean of the College of Education.

Note that a new incomplete grade (IN) policy is in effect. The new policy requires that students complete a form requesting an IN grade be assigned. If this form is not completed and given to the instructor of the class, a grade will be assigned with a score of zero (0) for work that has not been completed and turned in by the time the instructor reports grades.

**Academic Misconduct**

The Department of Educational Foundations, Leadership, and Technology recognizes university policy regarding academic misconduct. Violations include, but are not limited to: plagiarism, unauthorized assistance during examinations, submitting another’s work product as your own, using another’s words as your own without appropriate citation, sharing unauthorized materials with another that contain questions or answers to examinations, altering or attempting to alter assigned grades. In accordance with University policy regarding academic misconduct, students may be assigned several sanctions upon violations of the Student Academic Honesty Code. See the Student Policy eHandbook for specifics regarding academic misconduct as well as student’s rights and responsibilities associated with the Code.

**Disability Accommodations**

Students who need special accommodations in class, as provided for by the Americans with Disabilities Act, should arrange a confidential meeting with the instructor during office hours in the first week of classes, or as soon as possible if accommodations are needed immediately. You must bring a copy of your Accommodation Memo and an Instructor Verification Form to the meeting. If you do not have these forms but need accommodations, make an appointment with the Program for Students with Disabilities, 1244 Haley Center, 844-2096.

**Course Schedule**

This represents a schedule of the assignments and activities for the semester. This schedule is subject to change. Assignments and activities may be added to the schedule per the needs of the learning community. The third column represents the readings, assignments, and activities to be completed by the date listed.

**All assignments are due by the start of class except where indicated (\*).**

**\* Assignment due at 8:00am.**

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| **DATE** | **TOPIC(S)** | **TO BE COMPLETED** |
| August 22  **All meet** | Course introduction | * None |
| **MODULE 1** | | |
| August 29  **All meet** | Descriptive statistics; Probability; z-scores | * Ch. 1-3, 8 * Practice problems 1\* |
| September 5 | **NO CLASS MEETING**  **LABOR DAY OBSERVED** | * None |
| **MODULE 2** | | |
| September 12  **A-side meets** | Hypothesis testing;  Chi-Square  One-sample tests of significance | * Ch. 4, 7, 9, 10, 17 * Cook (2000) * Franco (2010) * Practice problems 2\* * CITI Training by 9/12 |
| September 19  **B-side meets** |
| **MODULE 3** | | |
| September 26  **A-side meets** | Two-sample tests | * Ch. 11-12 * Practice problems 3\* * Assignment 1 by 9/26 |
| October 3  **B-side meets** |
| October 10 | **NO CLASS MEETING** | * Assignment 2 |
| **MODULE 4** | | |
| October 17  **A-side meets** | One-way ANOVA | * Ch. 13 * Okpala (2007) * Practice problems 4\* * Midterm by 10/17 * Topic paper\* |
| October 24  **B-side meets** |
| **MODULE 5** | | |
| October 31  **A-side meets** | Factorial ANOVA | * Ch. 14 * Adams (2006) * Practice problems 5\* |
| November 7  **B-side meets** |
| **MODULE 6** | | |
| November 14  **A-side meets** | Repeated Measures and  Mixed ANOVA | * Makel (2021) * Practice problems 6\* * Assignment 4 by 11/14 * Assignment 5 by 12/2 |
| November 21  **NO CLASS MEETING**  **THANKSGIVING** |
| November 28  **B-side meets**  **Last class meeting** |
| November 29  **Asynchronous** | Presentations | * Presentations of data analysis project posted in Canvas |
| December 5  **Asynchronous** | Presentations | * Feedback on posters due |
| December 9 | Course wrap-up | * Data analysis paper due * Final exam due |

**Course Expectations**

Course expectations will be co-constructed during class on August 22, 2022, through a class discussion. Expectations for students, the instructor, and for the community at large will be arrived at by consensus and posted to Canvas prior to the second week of class. These may be amended as necessary throughout the semester.