**ERMA 7300 Syllabus**

**Course Number:** ERMA 7300 Distance

**Course Title:** Design and Analysis in Education I

**Semester:** Fall, 2021

**Credit Hours:** 3 credit hours

**Prerequisites:** ERMA7200 or Equivalent

**Meeting Time:** Class videos will be available at the beginning of each week

There will be 2~4 Zoom class meetings throughout the semester (TBA)

**Instructor:** Chih-hsuan Wang

4010 Haley

wangchi@auburn.edu

**Office Hour:**  Monday 10:00~12:00

You can make an appointment and request Zoom meeting

**Date Syllabus Prepared:** August 2021

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Texts:**

Ross, M. E., & Shannon, D. M. (2011). *Applied Quantitative methods in Education (2nd ed.)*. Kendall/Hunt Publishing Company.

Gravetter, F. J. & Wallnau, L. B. (2016). *Statistics for the Behavioral Sciences* *(10th ed.).* Cengage Learning. (ISBN: 978-1305504912)

**Recommended Reading:**

American Psychology Association (2020)*. Publication Manual of the American Psychological Association (7th ed.)*. American Psychological Association. (ISBN: 978-1433832161)

Field, A. (2017). *Discovering Statistics Using IBM SPSS Statistics (5th ed.)*. Sage. (ISBN: 978-1526436566)

Field, A., Miles, J., & Field, A. (2012). *Discovering Statistics Using R*. Sage. (ISBN: 978-1446200469)

Huck, S. W. (2012). *Reading Statistics and Research (6th ed.).* Pearson Education. (ISBN: 978-0132178631)

Shannon, D. M., & Davenport, M. A. (2001). *Using SPSS to Solve Statistical Problems*. Merrill/Prentice Hall.

**Technology & Computer Software Requirements:**

1. Access to high-speed internet through smart mobile device or computers.
2. SPSS version 25/26/27/28. If you have a university own desktop/laptop, you can request a copy of SPSS from OIT Help Desk at the LRC. If you are in campus, you will be able to access SPSS at computer labs in Haley Center. However, if you are not nearby the campus, **you need to purchase or rent a copy of SPSS. You can find additional information here:** [**https://www.ibm.com/us-en/marketplace/spss-statistics-gradpack/details**](https://www.ibm.com/us-en/marketplace/spss-statistics-gradpack/details). **Remember to get the Grad Standard Pack instead of Base Pack.** I will not accept the work completed by hand calculation unless it is the only way to do it. It is okay to use previous version of SPSS.
3. You can use other statistical software/package, such as SAS, R, STATA, or Python, to complete your work.
4. Microsoft Office Word.
5. PDF file creator (e.g. Adobe Acrobat).
6. Zoom application. You can install it in your computers, tablets, or smartphones. This is for participating virtual office hours.

**Other Prerequisite Skills:**

Students taking this class are expected to be able to perform the following basic skills **at the beginning** of the class:

1. **Computer basic skills**: open, save, copy-paste, use track changes, make tables and create the Word and PDF documents.
2. **Online learning platform basic skills**: open, download, and upload documents, review documents and video clips online, and **review instructor feedback on the Canvas. (More student resources for Canvas can be found here:** <http://wp.auburn.edu/biggio/canvas/student-help/> )

**IMPORTANT:**

All course materials (syllabus, PPTs, assignments, rubrics…etc.) will be available in Canvas. Check the Canvas site weekly for announcements, assignments, and information about the class.

**University COVID-19 Pandemic Policies**

**Zoom policy** - When we meet on Zoom, your attendance, attention, and participation are expected. Zoom participation requires you to keep your video on and your microphone muted when you are not speaking. Although you may be participating from your domicile, our Zoom meetings are professional interactions. You should dress and behave as you would in a normal F2F classroom. To the extent possible, please minimize distractions in the background. I reserve the right to dismiss anyone from a Zoom meeting whose environment or behavior is distracting or problematic. If you have any issues with sharing your video feed, adhering to this policy, or anything else related to your use of Zoom please notify me via email in the first week of class. I’m happy to consider and provide accommodations, but you will need to be in communication with me.

**Attendance** - Your health and safety, and the health and safety of your peers, are my top priorities. If you are experiencing any symptoms of COVID-19, or if you discover that you have been in close contact with others who have symptoms or who have tested positive, you should not attend any in-person classes. You will not be penalized for such an absence nor will you be asked to provide formal documentation from a healthcare provider. My hope is that if you are feeling ill or if you have been exposed to someone with the virus, you will stay home to protect others. I don’t want the need for documentation to discourage you from self-isolating when you are experiencing symptoms.

Please do the following in the event of an illness or COVID-related absence:

* Notify me in advance of your absence if possible
* Keep up with coursework as much as possible
* Participate in class activities and submit assignments electronically as much as possible
* Notify me if you require a modification to the deadline of an assignment or exam

Finally, if remaining in a class and fulfilling the necessary requirements becomes impossible due to illness or other COVID-related issues, please let me know as soon as possible so we can discuss your options

**Face Covering and Physical Distancing on campus** - In response to COVID-19, and in alignment with Auburn University's Presidential directives, and local, state, and national health official guidelines face coverings are required at all times while on campus, except when alone in a private office. "A “face covering” is defined as a “covering that fully covers a person’s nose and mouth, including without limitation, cloth face mask, surgical mask, towels, scarves, and bandanas. If a student has a medical exception to the face covering requirement, please contact the Office of Accessibility to obtain appropriate documentation.

Face coverings are not a substitute for physical distancing. Students shall observe physical distancing guidelines where possible in the classroom, laboratory, studio, creative space setting and in public spaces.

Students should avoid congregating around doorways before or after class sessions. If the instructional space has designated entrance and exit doors students are required to use them. Students should exit the instructional space immediately after the end of instruction to help ensure social distancing and allow for the persons attending the next scheduled class session to enter.

**If we go fully Remote** - In the event that the University is forced to move to fully online instruction, please be assured that the learning goals and outcomes of the course will not change; however, some aspects of the course will change in terms of the mode of delivery, participation, and testing methods. Those details will be shared via a Canvas Announcement within 24 hours of the announcement that we are going remote. Please be prepared for this contingency by ensure that you have access to a computer and Internet.

**Course Description:**

Basic methods of descriptive and inferential analysis including chi-square, t-tests, between and within subjects ANOVA, and mixed ANOVAs designs as they are utilized in educational research.

**Course Objectives**:

Upon completion of this course, the student will be able to:

* explain the process of hypothesis testing and apply to research problems.
* identify different types of research designs and variables found in published articles.
* describe the strengths and limitations of different research designs.
* identify applications of a wide variety of statistical procedures.
* solve educational research problems using statistical tests of significance.
* make accurate interpretations of statistical findings.
* use data analysis software (SPSS) to solve statistical problems.
* review published research literature to examine the application of measurement, design, and analysis procedures.
* prepare a written summary of data analysis results in APA format.

**Course Requirements:**

* Attend all class sessions and participate in class discussions and activities.
* Complete all examinations.
* Complete all computer exercises.
* Review published research literature to examine applications of course content.

**Grading and Evaluation Procedures:**

Examinations (100 pts X 2) 200 points

Labs (20 pts X 5) 100 points

Total possible points 300 points

Students missing three or more class meetings will have their final grade reduced by one letter grade.

Any assignment presented or turned in late will be penalized 5% for each day past the assignment deadline. Assignments more than 2 weeks overdue will not be accepted.

You can check your grade for each assignment you submitted in the Canvas. However, I keep the official grades in an Excel file and will calculate your final grade using Excel or SPSS.

**Grading Scale:**

|  |  |
| --- | --- |
| **Grade** | **Percentage** |
| **A** | ***270 points and above, and excellent attendance and participation*** |
| **B** | ***240~269 points and at least good attendance and participation*** |
| **C** | **210~239 points** |
| **D** | **180~209 points** |
| **F** | **<180 points** |

* Class Attendance

In order to explore topics effectively, attendance and class participation are essential. You are expected to attend class and participate in the group discussion. Students missing three or more class meetings will have their final grade reduced by one letter grade.

* Examinations (100 points each)

There will be two examinations. These exams will be in class or take home. You can have a cheat sheet for the exams if it is an in class exam. If it is a take-home exam, you can use all resources you can find. However, the work needs to be your own work.

* Labs (40 points each)

Labs are designed to introduce you to the use of SPSS to complete analyses taught in class. Due to time restraints, it is NOT intended to provide you with enough practice to memorize procedures. You should have reference books to help you complete analyses via SPSS when you do are completing analyses on your own. You can work in pairs on lab assignments and turn in one lab assignment per pair if you wish.

**Class Policy Statements**

* ***Email and Communication***
* All communication through emails needs to be via Auburn Tiger Email system. In other words, you need to use your university email address to send me emails, and I will do the same. Emails will be responded **within 48 hours** **excludes weekends and holidays.**
* All PPTs and announcements will be posted in the Canvas at the beginning of each week. You are responsible to check the Canvas every week.
* All assignments need to be uploaded in the Canvas. I will grade your assignments in the Canvas. **You can check your grade and my feedback for each assignment in the Canvas as well.** However, I keep your official grades in my Excel file.
* If you need individual help, you can reach me during the office hours, email, or make an appointment (request Zoom meeting).
* ***Class Attendance***

Points are not attached to attendance directly. However, in order to explore topics effectively, attendance and class participation are essential. Excellent class attendance is required to earn an A and to earn lab or other PPT activities points. If you need to be absent for school or work-related requirements, illness, or an emergency, you are allowed to make up points for no more than two classes. Students are responsible for initiating arrangements for missed work.

* ***Assignment Policy***
* Assignments need to be submitted/uploaded on Canvas in Word or PDF format.
* All work submitted for the course must be typed.
* Due to the potential incompatibility of word processing programs and formats, and the potential for the transmission of viruses, absolutely no work for the course will be accepted as an E-mail and/or as an E-mail attachment, or on a disk etc. All graded work must be uploaded onto Canvas.
* ***Late Assignments Policy***
* Assignments turned in late will receive a 5% reduction in earned points per day. The only exception will be in the case of emergency.
* Assignments more than 2 weeks overdue will not be accepted.
* Except for work requiring calculations, all work must be typed or it will **not** be graded. Late penalty will be applied to work completed in writing and then turned in late in typed format for a grade.
* ***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 class day 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 the incomplete grade (IN) policy is in effect. The new policy requires that students complete a form requesting that an IN grade be assigned. If this form in 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. To be eligible for a grade of IN, the student must have completed and have passed more than half of all class assignments/exams for semester.
* ***Academic Misconduct***

**Academic Honesty**

The Department of EFLT 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 subject to several sanctions upon violations of the Student Academic Honesty Code.** See the Tiger Cub publication for the current year for specifics regarding academic misconduct as well as student’s rights and responsibilities associated with the Code.

**Plagiarism**

For more information, see:

<http://www.collegeboard.com/student/plan/college-success/10314.html>

<http://owl.english.purdue.edu/owl/resource/589/01/>

<http://www.indiana.edu/~wts/pamphlets/plagiarism.shtml>

* ***Disability Accommodations***

Students who need special accommodations in class, as provided for by the American Disabilities Act, should arrange a confidential meeting with the instructor during office hours the first week of classes — or as soon as possible if accommodations are needed immediately. If you have a conflict with my office hours, an alternate time can be arranged. To set up this meeting, please contact me by e-mail. 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, 1228 Haley Center, 844 2096 (V/TT).

**Tentative Course Content and Schedule**

| Week | Date | Reading & Class activities | Due Dates |
| --- | --- | --- | --- |
| 1 | 8/16 | Syllabus & Introduction  Introduction to Statistics |  |
| 2 | 8/23 | Frequency Distribution  Central Tendency & Variability  Reading: Ross and Shannon, Chapter 1~3 |  |
| 3 | 8/30 | z-score  Normal Distribution  Probability | Lab #1 Descriptive  By Sun, 9/05, 11:59 pm |
| 4 | 9/06 | Hypothesis Testing  Reading: Ross and Shannon, Chapter 15 |  |
| 5 | 9/13 | One Sample Tests: z-test and t-test  Reading: Ross and Shannon, Chapter 4 |  |
| 6 | 9/20 | Two & Related Samples t-Tests  Reading: Ross and Shannon, Chapter 5 | Lab #2 z and t-tests  By Sun, 9/26, 11:59 pm |
| 7 | 9/27 | Exam I Review |  |
| 8 | 10/04 | Exam I | Exam I  By Sun, 10/10, 11:59 pm |
| 9 | 10/11 | One-way ANOVA with Two Levels  Reading: Ross and Shannon, Chapter 6 |  |
| 10 | 10/18 | One-way ANOVA with Three Levels  Reading: Ross and Shannon, Chapter 6 | Lab #3 One-way ANOVA  By Sun, 10/24, 11:59 pm |
| 11 | 10/25 | Factorial ANOVA  Reading: Ross and Shannon, Chapter 7 | Lab #4 Factorial ANOVA  By Sun, 10/31, 11:59 pm |
| 12 | 11/01 | Within Subjects Designs  Reading: Ross and Shannon, Chapter 8 |  |
| 13 | 11/08 | Mixed Design  Reading: Ross and Shannon, Chapter 9 | Lab #5 Repeated-measure & Mixed-design ANOVA  By Sun, 11/14, 11:59 pm |
| 14 | 11/15 | Binomial Test & Chi-square Test | Bonus Lab Binomial Test & Chi-square Test  By Sun, 11/21, 11:59 pm |
| 15 | 11/22 | Thanksgiving Break | |
| 16 | 11/29 | Exam II | Exam II  By Sun, 12/05, 11:59 pm |

NOTE: This is a tentative syllabus. Any changes will be announced in class or Canvas. Students are responsible for being aware of the changes made.