



A&M-COMMERCE

AG 532 – Scientific Methods of Agricultural Research
Spring 2024 (3 hrs.)
CRN 26495

Instructor

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Course Meeting Times & Location

Online* (Dean's Permission Granted)

Office Hours

I have an open-door policy for office hours. If my door is open, you may come in. You may also email me to schedule an in-person appointment or for general questions during normal business hours.

Course Description

This course introduces students to the processes of scientific investigation, research methodologies and techniques, data interpretation, experimental design options, and scientific methodologies involved with planning, executing, interpreting and the scientific writing of research projects.

Learning Outcomes

Upon completion of this course students should be able to demonstrate the following skills and concepts:

- Describe the conceptual aspects of research methods
- Describe the process of conducting a literature review
- Compare and contrast the use of theory in qualitative, quantitative, and mixed methods research
- Recognize the elements of an introduction to a research study
- Draft a purpose statement
- Draft research questions and hypotheses
- Apply critical thinking skills to write the key elements of a quantitative research proposal
- Apply critical thinking skills to write the key elements of a qualitative research proposal
- Identify ethical concerns to anticipate in research
- Integrate knowledge of qualitative, quantitative, and mixed methods approaches into developing a research design

Course Textbook (Required)

Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches (5th ed.)*. SAGE Publications. (ISBN: 978-1-5063-8670-6)
Publication Manual of the American Psychological Association, 7th Edition, (2020). (ISBN: 978-1-4338-3217-8)

Course Specific Procedures

General Policies

- The use of any tobacco products is strictly prohibited in all classrooms.
- Please suspend the use of all electronic devices during lecture other than for notetaking.

Written Assignments

Each discipline within agricultural research has a style guide that is used in written published works. You will need to identify the style guide used in your discipline and submit all written assignments following the style you select. This will allow you to learn the guidelines for scholarly writing in your area, help you to produce clearer written ideas, and suggests high-quality scholarly writing. Adherence to the rules for the style guide of your discipline will be considered in the grading of all assignments.

Course Work

No late work will be accepted in this course without pre-approval from the instructor. Assignments not turned in on time will result in a zero given for the grade. All assigned reading should be completed before the corresponding lecture time. Graduate researchers should pay particular attention to plagiarism and refrain from the practice, including self-plagiarism. Plagiarized work will result in a zero for the assignment and may result in disciplinary action from the graduate school.

Class Attendance

Due to the nature of this course, lecture attendance is strongly encouraged. University excused absences will be honored when appropriate written documentation is provided, otherwise the absence will be considered unexcused. Makeup work may be arranged with the instructor prior to excused absences. Students may not make up work missed from unexcused absences.

Interaction with Instructor

E-mail will serve as the primary method for out-of-class communication between the instructor and students. Therefore, students should check their university (myLeo) or other preferred e-mail account at least once daily. The instructor will attempt to answer each student-generated message within 48 hours.

University Specific Procedures and Language

Students with Disabilities-- ADA Statement:

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services

Texas A&M University-Commerce

Gee Library- Room 162

Phone (903) 886-5150 or (903) 886-5835

Fax (903) 468-8148 3

Email: studentdisabilityservices@tamuc.edu

Website: Office of Student Disability Resources and Services

<http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/>

Counseling Availability

The Counseling Center at A&M-Commerce, located in the Halladay Building, Room 203, offers counseling services, educational programming, and connection to community resources for students. Students have 24/7 access to the Counseling Center's crisis assessment services by calling 903-886-5145. For more information regarding Counseling Center events and confidential services, please visit www.tamuc.edu/counsel

Nondiscrimination Notice

Texas A&M University-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

Citizenship

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the Student Guidebook.

<http://www.tamuc.edu/Admissions/oneStopShop/undergraduateAdmissions/studentGuidebook.aspx>

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum: <https://www.britannica.com/topic/netiquette>

Campus Concealed Carry Statement

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations.

For a list of locations, please refer to the *Carrying Concealed Handguns On Campus* document and/or consult your event organizer.

Assignment Descriptions

Problem Sheets (100 Points)

Problem sheets are designed to help you better understand the text materials and to help you become a consumer of research. Each chapter of the textbook will have an accompanying problem sheet.

Training (100 Points)

Each student conducting research at TAMUC is required to complete Responsible Conduct in Research training through CITI. You will provide a copy of your certificate of completion for this assignment. If you will be working with animals or human subjects, you are encouraged to complete those trainings as well. Information will be provided in D2L for how to complete the training.

Research Article Critiques (2 Critiques @ 100 Points Each) (200 Points)

Students will conduct content analyses of two research articles. Prepare a report (two pages) describing the (a) type of research, (b) justification, (c) clarity, (d) definition of terms, (e) sampling procedures, (f) internal validity, (g) instrumentation, (h) external validity, (i) appropriateness of results and interpretations, (j) data analysis, (k) justification of conclusions, and (l) relevance of citations.

Research Proposal Topic and Introduction (100 Points)

Students will select a research topic and write an introduction for their research proposal. The introduction should clearly state the problem you are investigating, why it is significant, introduce any concepts that may not be clear to a person outside of your discipline, and provide definitions of key terms to be used in the full proposal. (Should be 2-3 Pages, Double-Spaced)

Peer Review (100 Points)

Each research proposal will be evaluated by two peers with attention to content, critical analyses of the topic, writing quality and clarity, organization, and adherence to the discipline style guide.

Research Proposal (200 Points)

Students will select a research topic of interest and write a research proposal for that topic. The research proposal must have a **minimum of 10 refereed research articles** that have been published in peer reviewed journals. Appropriate sections in the proposal include (a) cover page, (b) table of contents, (c) introduction or background, (d) purpose, (e) subheadings (statement of problem, objectives/research questions, definition of terms, limitation of the study, significance of study/need for study), (f) review of literature, (g) methodology, and (h) references. Please adhere to all style guidelines and rules from your discipline for research writing. Not counting the cover page, table of contents, or references, the document should be **8 – 10 double-spaced pages**.

Exams (2 Exams @ 100 Points Each) (200 Points)

A midterm and final exam will be administered either in person or online for this class. The exams will be a combination of multiple choice, true/false, matching, short answer, and essay questions. You will have the full class time to complete each exam.

Grading Scale

Total Points	Letter Grade
900 – 1000	A
800 – 899	B
700 – 799	C
600 – 699	D
599 or Less	F

Course Calendar

Week	Lecture Topic	Reading	Assignment Due
1. 01/16	Course Introduction & The Selection of a Research Approach	Ch. 1	
2. 01/23	Review of the Literature	Ch. 2	Ch. 1 Problem Sheet
3. 01/30	Ethical Considerations & TAMUC Research Training	Ch. 4	Ch. 2 Problem Sheet
4. 02/06	The Use of Theory	Ch. 3	Ch. 4 Problem Sheet Training Certificate
5. 02/13	The Introduction	Ch. 5	Ch. 3 Problem Sheet Article Critique #1
6. 02/20	The Purpose Statement Research Questions & Hypotheses	Ch. 6 Ch. 7	Ch. 5 Problem Sheet Research Proposal Topic Intro
7. 02/27	Midterm Exam		Ch. 6 Problem Sheet Ch. 7 Problem Sheet
8. 03/05	Quantitative Methods		Work on Proposal
9. 03/12	Spring Break		
10. 03/19	Quantitative Methods (TAMUC – CDE Clinics & Invitational)		Article Critique #2
11. 03/26	Quantitative Methods		Submit Proposal for Peer Review
12. 04/02	Qualitative Methods	Ch. 8	Per Review of Proposal
13. 04/09	Qualitative Methods	Ch. 9	Ch. 8 Problem Sheet
14. 04/16	Qualitative Methods	Ch. 10	Ch. 9 Problem Sheet
15. 04/23	Designing a Poster for Professional Conference or Scholarly Presentation		Ch. 10 Problem Sheet
16. 04/30	Mix Methods Procedures		Power Point Poster
17. 05/05 - 09	Final Exam		

Final Exam (To be completed online between May 5 and May 9)

*Schedule is tentative and may be changed by the instructor at any time.

**All readings from the textbook should be completed before the corresponding lecture.

***All assignments are due before class starts on the day they are due.