



Course syllabus

TEC 5143- Research in Technology

Term: Fall 2025

Course Time: Tuesday: 6:00 PM to 8:30 PM

Classroom: Klehm Hall 4431

Course Dates: Aug. 25, 2025 – Dec. 12, 2025

Faculty: Dr. Reachsak Ly

Email: rlly@eiu.edu (Preferred communication method)

Office: Klehm Hall 4014

Office Hours: Tuesday and Thursday, 10:00 AM to 1:00 PM or by appointment

Communication Response Time: Within 2 days

Required Textbooks

Practical Research: Planning and Design, (11th Edition), Paul D. Leedy; Jeanne Ellis Ormrod Publisher ISBN: 9780133741322 ([Textbook](#))

Course description

This course introduces the means and methods of research used to define and investigate problems in technology-related fields. Topics include problem and scope definition, literature review, research methodologies, data collection, and data analysis. Students will learn the processes and tools for conducting both experimental and non-experimental research, with an emphasis on research design, analysis, interpretation, and reporting. The course also guides students in the development and writing of a research proposal.

Course objectives

Objectives of this course is to prepare students to conduct research in different technological fields. Students will be able to learn to define a research problem, to conduct effective research using library and online resources, write literature reviews and research reports, and to present their research findings in a professional manner in a group environment.

Student Learning outcome

At the end of the course the student should be able to understand the knowledge and skills required to:

1. Generate a research topic and a research problem statement and develop an empirical research question
2. Use the reference area of the library, interlibrary loan services, and computerized databases to locate relevant articles on a selected topic.
3. Execute literature reviews, Search and analyze literature to identify a gap in empirical knowledge.
4. Formulate a hypothesis statement.
5. Critical read reviews of research and critique as to:
 - a. Definition of a topic or problem
 - b. Adequacy of prior reviews in the area

- c. Selection of studies to be reviewed.
- d. Analysis of study findings and pertinent characteristics
- 6. Develop a system for collecting data about the characteristics and results of previously conducted research.
- 7. Analyze this collected data and interpret and report the results.
- 8. Use APA standards when writing a research proposal.
- 9. Develop a deliverable Research Portfolio that can be used in further research.
- 10. Describe ethical issues related to empirical research and expectations for ethical behavior
- 11. Describe the steps required to create an effective empirical research proposal
- 12. Evaluate appropriateness of data collection and analytical methods to answer empirical research questions

Grading Structure

Content	Percentage
Attendance and participation	10%
Literature review	15%
PowerPoint presentation	15%
Quizzes	10%
Journal entries	10%
Proposal related assignment	15%
Final Proposal	10%
In-class activities	15%
Total	100%

Grading Scale:

Individual grade items and your final grade will be assessed as follows:

A = 100- 90%

B = 89- 80%

C = 79-70%

D = 69-60%

F = less than 60%

Grading Policies

Deductions to your assignments grade for late submission will be given as follows:

0-24 hours late a deduction of 15% of the earned grade

24-48 hours late a deduction of 40% of the earned grade

48-72 hours late a deduction of 60% of the earned grade

More than 72 hours late No credit.

Assignments must still be submitted to get a grade for this course.

Reading Assignments

Students are expected to read the textbook chapters and course slides in the relevant Module before starting each course session on the D2L.

Participation

Face to Face (F2F) courses students will need to attend class and participate in classroom discussions or activities in order to receive participation points. We will have either have activities or online based activities to show participation for the week. Partial participation points will be given in certain approved circumstances with official proof provided, (i.e., doctors note, accident report, etc.)

Journal Entries

Journal entries are not for reciting facts. It is a self-reflection on what you have learned and how you plan to use or have used the information. You are required to complete a journal entry every week for 12 weeks during the semester. See the “Journal Entry Requirements” PDF document in the Assignment Explanation Module.

Literature Reviews

Each student is asked to provide a list of three scholarly articles that are relevant to his/her own research topic interest. Students will use these articles to create their qualitative, or quantitative research proposals. This exercise is also designed to provide the opportunity for students to demonstrate their skill at completing some basic steps necessary to conduct literature reviews. See the “Literature Review Requirements - Sample” PDF document in the Assignment Explanation Module.

PowerPoint Presentations

Each student will present their Research Project in a series of two PowerPoint presentations. The first will be a 5-minute presentation based on their Research Topic, the Research Problem, Sub-problems and your Hypothesis. This will be completed on Week 7. The second will be a 10-minute presentation based on their Proposal Introduction, Problem Statement, Objectives, Preliminary Literature Review, and Methodology. This will be completed in the final class meetings. Attendance is mandatory, even if you have already presented your Research.

Quizzes

The quiz date will be announced in advance and will cover material from specified chapters in the textbook and from PowerPoint slides in the course Modules. Each quiz will be worth 25 points based of 25 questions from True and False or Multiple Choice. Each quiz will be available on D2L.

Research Project Proposal

There will be an individual project proposal that each student will write based on the instructions provided in the D2L. There will be a series of assignments based on the components required to create a proposal. Students will prepare and submit their components in an approved format and APA style in a Word document. The details of the project will be announced on D2L throughout the semester. See the “A sample proposal with comment” and “Sample Proposal Format” PDF documents in the Assignment Explanation Module.

In-class Activities

Some in-class activities and additional assignments (Library, APA and Proposal Correction) are required during the semester. You are responsible to read the description of these assignments on D2L and complete them with instructions when the appropriate Module is discussed. Some of these exercises will require submission via d2l.

Course outline

* The course schedule is subject to change throughout the semester. Revisions will be noted in class.

Week	Date	Class topics	Reading	Assignments and Quizzes
Week 1	Aug 26	Course introduction Introduction to empirical research		

Week 2	Sept 2	The Nature and Tools of Research	Chapter 1	
Week 3	Sept 9	The Problem: The Heart of the Research Process Problem Statements	Chapter 2	
Week 4	Sept 16	Review of the Related Literature Literature Analysis Gap statement	Chapter 3	
Week 5	Sept 23	Planning your Research Project Research Questions	Chapter 4	
Week 6	Sept 30	Writing the Research Proposal	Chapter 5	
Week 7	Oct 7	Presentations Quiz #1		
Week 8	Oct 14	Quantitative Descriptive Research	Chapter 6	
Week 9	Oct 21	Experimental, Quasi-Experimental, and Ex Post Facto Designs	Chapter 7	
Week 10	Oct 28	Analyzing Quantitative Data	Chapter 8	
Week 11	Nov 4	Qualitative Research Methods Quiz #2	Chapter 9	
Week 12	Nov 11	Historical Research	Chapter 10	
Week 13	Nov 18	Analyzing Qualitative Data	Chapter 11	
Week 14		Thanksgiving Break		
Week 15	Dec 2	Mixed-Methods Designs Limitations	Chapter 12	
Week 16	Dec 8	Final Presentations		
Final exam week		No Final Exam		

Note: This is a tentative schedule, and subject to change as necessary. The instructor reserves the right to make changes to the topics or sequence of topics, schedule, assignments, grading plan, and content of the course.

Academic Integrity

Students are expected to maintain the principles of academic integrity and conduct as defined in EIU's Code of Conduct (<http://www.eiu.edu/judicial/studentconductcode.php>). Violations will be reported to the Office of Student Standards. In this class, students may assist each other in accomplishing a homework assignment, but the submitted work must be the student's own original work. **Copying work or plagiarism will not be tolerated. Students may *not* collaborate on tests or quizzes. Cheating or plagiarism will, at least, result in a zero on the assignment or exam.**

- *AI and Academic Integrity:* Students are not allowed to use advanced automated tools (artificial intelligence or machine learning tools such as ChatGPT, Grammarly, or Dall-E 2) on assignments in this

course. Each student is expected to complete each assignment without substantive assistance from others, including automated tools.

Written work may be submitted through Turnitin in D2L. Turnitin includes an AI detection tool which indicates the amount of qualifying text within the submission that Turnitin's AI writing detection model determines was generated by AI. This information may be used, in addition to other evidence, if there are concerns with academic misconduct.

It is also the responsibility of the student to ensure that his or her work does not qualify as plagiarism. If a student does not understand plagiarism, then he or she must seek out information on the matter. The excuse of ignorance on the matter is not an acceptable excuse.

Students with Disabilities

If you are a student with a documented disability in need of accommodations to fully participate in this class, please contact the Office of Student Disability Services (OSDS). All accommodations must be approved through OSDS. Please stop by Ninth Street Hall, Room 2006, or call 217-581-6583 to make an appointment

Emergency Preparedness Plan

Instructions regarding procedures to follow in the event of an emergency are posted in all classrooms. Students are responsible for acquainting themselves with these instructions so that they are prepared in the event of an emergency.

The Academic Success Center

Students who are having difficulty achieving their academic goals are encouraged to contact the Academic Success Center (www.eiu.edu/~success) for assistance with time management, test taking, note taking, avoiding procrastination, setting goals, and other skills to support academic achievement. The Center provides individualized consultations. To make an appointment, call 217-581-6696 or go to 9th Street Hall, Room 1302.