

Fall 2024 Course Syllabus for
Research Methods

*University of Texas at El Paso
College of Engineering
Department of Electrical & Computer Engineering*



COURSE INFORMATION

CRN:	15772/15816
Course Prefix & Number:	EE 5392/6392
Course Title:	Research Methods
Course Website:	https://empossible.net/academics/research-methods/
Meeting Day & Time:	Monday & Wednesday, 6:00pm – 7:20pm
Room:	UGLC 334
Final Exam:	Wednesday, 11 December 2024, 7:00pm – 9:45pm
Credit Hours:	3
Lecture Hours:	3

Catalog Description – Techniques, tools, and skills needed to conduct, evaluate, document, and disseminate research in Electrical Engineering. Students will produce and defend a written research proposal in a specific area of interest.

INSTRUCTOR INFORMATION

Name: **Dr. Raymond C. Rumpf**
Office: ENGR A-337
Telephone: (915) 747-6958
E-Mail: rcrumpf@utep.edu

COURSE MATERIALS

The following items are required for this course:

- Reliable access to the internet.
- Recommended Software (or equivalent)
 - MATLAB -- Manual available at: <https://www.mathworks.com/help/matlab/index.html>
 - Blender 4.2+ -- <https://www.blender.org/>
 - Microsoft Office (Word, PowerPoint, Publisher) – MS Products available through UTEP at [Microsoft Office 365](#).

Students should maintain a well-organized notebook that archives their syllabus, lecture notes, homework, and all other materials related to this course.

IMPORTANT: If you encounter technical difficulties beyond your scope of troubleshooting, please contact the [UTEP Help Desk](#) as they are trained specifically in assisting with technological needs of students. Please do not contact me for this type of assistance. The Help Desk is much better equipped than I am to assist you!

PREREQUISITES/COREQUISITES

Department approval required.

COURSE OUTLINE

Topics covered in this course include:

1. Professional communications
 - a. Graphics and visualization
 - b. Writing
 - c. Speaking
 - d. Teaching
2. Graduate school and research
 - a. Choosing a research topic and advisor/mentor
 - b. Searching and reading the literature
 - c. Proposing and defending your research
 - d. Doing science
 - e. Dissemination and the peer-review process
 - f. Psychological aspects of graduate school
 - g. Learning strategies
 - h. Data management
 - i. Responsible conduct and ethics
 - j. Planning
3. Business & Career Aspects of Research
 - a. General advice for graduate school and research
 - b. Intellectual property and commercialization of technology
 - c. Branding yourself and your research
 - d. Professional networking
 - e. Writing proposals
 - f. Project budgets
 - g. Business strategy
 - h. Entrepreneurship
 - i. Applying for a faculty position
 - j. Career development

LEARNING OUTCOMES

By the end of the semester, the student will demonstrate the ability to:

- Visualize data and concepts using high-quality professional graphics,
- Organize and produce written documents with professional formatting,
- Give effective presentations,
- Understand and apply the scientific method,
- Search and read the literature,
- Disseminate research results via publication, presentation, posters, online, and more,
- Apply proper data management,
- Apply proper conduct and ethics in their research,
- Brand themselves and their research,



- Develop and maintain a strong professional network,
- Develop a competitive research proposal,
- Understand the format and contents of a graduate research proposal and dissertation.

Contribution to Professional Component

EE 5392/6392 teaches important skills that fall outside of the typical classroom experience. This course will place a heavy emphasis in graphics and communication skills because these are critical for career success and often very weak in STEM.

Relationship to (ABET) Program Outcomes

- Ability to apply knowledge of mathematics, science, and engineering: Students use concepts from physics and calculus in the analysis of electromagnetic problems.
- Ability to identify, formulate, and solve engineering problems: Students solve problems and observe simulations of electromagnetic problems.
- Ability to communicate effectively: Students solve problems and discuss electromagnetic issues in class.
- Ability to use computers to enhance problem solving: Students observe MATLAB to solve problems and visualize solutions.

RULES & POLICIES

Grading

Student achievement will be assessed using a combination of class participation, homework, and exams. Participation includes attendance, being prepared for class, not disrupting the class, asking and answering questions during the lecture, participating in class activities, and providing honest and useful feedback to the course instructor. Student grades are protected by the Privacy Act of 1974.

Your course grade will be determined by your weighted performance in the following categories:

Participation.....	30%	90% to 100%	A
Homework.....	30%	80% to 89%	B
Midterm Exam.....	20%	70% to 79%	C
Final Exam.....	20%	60% to 69%	D
		0% to 59%	F

Homework Policy

Homework will be graded on a 100-point scale. Unless directed otherwise, solve all problems by hand and show all work. Homework is due before 5:00pm on the assigned due date. In order to provide solutions in a timely manner, no homework assignments will be accepted after three days following the due date and 10 points will be deducted for every day late. Homework must be completed with a high level of professionalism and be formatted properly. Points will be deducted for sloppy work, incorrect formatting, and poor or incorrect content. Always do your own work. Do not ever copy work from others, from the internet, or from any source other than yourself.



Formatting Requirements

- Unless otherwise indicated, all homework assignments will be submitted as a single paper document stapled in the upper left corner with no additional binding.
- The first page must be a cover sheet with the student's name, student's 800 number, date of the assignment, course information, and assignment number. No problems or work shall appear on the cover sheet.
- (Optional) For your own records, it is recommended that you include a copy of the original assignment after the cover page and before your work.
- Homework shall be neat, well organized, writing clear, and graphics should be professional and of high-quality.
- Answers must be provided in the order they were asked in the original assignment.
- If the assignment involves computer programming, all of the codes shall be placed at the end of the assignment in an appendix unless specifically requested to do otherwise.

Exam Policy

Exams in this course will be project based and completed at home. Rules for exams are the same as for the homework. Exams may be written documents, presentations to the class, or both.

Missed Exams – A missed exam can be made-up ONLY IF: (1) the reason for missing the exam is beyond the student's control, e.g. such as a medical excuse, jury duty, death in the family or automobile accident, or (2) prior consent is obtained from the instructor for missing the exam based on a non-frivolous reason, e.g. such as a job interview, conference, or out-of-town job related travel. In either case, the student must submit a written and signed statement describing the reasons for missing the exam, with appropriate documentation, and petition for a makeup exam. Medical excuses require a note from the doctor. A missed exam will carry zero grade if these conditions are not met.

Attendance Policy

Students are required to attend class and to show up to lectures on time. The course instructor reserves the right to turn away late comers and to withdraw students from the course that are repeatedly absent. Students missing more than two lectures should seriously reflect on their commitment to this course, as missing classes is highly correlated with poor performance. Students absent from lecture are still held responsible for all information discussed, homework assigned, and exams administered during that missed lecture. In some cases, absence can be forgiven if the reason is not frivolous and coordinated with the course instructor well before the lecture is missed.

Participation Policy

The following items are expected from students as part of their participation grade:

- Ask questions! Despite how “silly” or “dumb” you may think your question is, it is very likely that other students have the same question. Confusion on even small details in course material can cause bigger problems and hold you back. If you are truly embarrassed by your question, send an anonymous e-mail to the course instructor. I promise I will respond!
- Participate in class activities. They are designed to challenge you and to teach you.



- Respond honestly to poles and provide real-time feedback to instructor about the course. This will contribute greatly to the quality of the course and your success in it.
- If needed, visit the course instructor during office hours, or by appointment.
- Treat e-mail correspondence as a professional exchange of information.
- Always turn off cell phones, pagers, or anything else that may distract the class.
- Show proper etiquette during class. Do not talk, make excessive noise, or otherwise distract the class. You will be asked to leave and it will affect your grade.

ACADEMIC DISHONESTY

Academic dishonesty is prohibited and is considered a violation of the UTEP [Handbook of Operating Procedures](#) (HOOP). As an entity of The University of Texas at El Paso, the Department of Electrical and Computer Engineering is committed to the development of its students and to the promotion of personal integrity and self-responsibility. The assumption that a student's work is a fair representation of the student's ability to perform is the basis for departmental and institutional quality. All students within the Department are expected to observe appropriate standards of conduct. Acts of scholastic dishonesty such as cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in the whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student, or the attempt to commit such acts will not be tolerated. Any case involving academic dishonesty will be referred to the Office of Student Conduct and Conflict Resolution (OSCCR) and will remain part of your permanent record at UTEP. OSCCR staff will investigate the charge and alert the student as to its disposition. Consequences of academic dishonesty may be as severe as dismissal from the University.

Office of Student Conduct and Conflict Resolution

<https://www.utep.edu/student-affairs/osccr/>

Phone: (915) 747-8694

E-Mail: studentconduct@utep.edu

You can also refer to the IEEE website for information on our code of ethics:

<http://www.ieee.org/about/corporate/governance/p7-8.html>

Plagiarism Detecting Software

Some of your course work and assessments may be submitted to *SafeAssign*, a plagiarism detecting software, or other similar tools. *SafeAssign* may be used to review assignment submissions for originality and will help you learn how to properly attribute sources rather than paraphrase.

CAMPUS RESOURCES FOR LEARNING

UTEP provides a variety of student services and support:

Technology Resources

- [Help Desk](#): Students experiencing technological challenges (email, Blackboard, software, etc.) can submit a ticket to the UTEP Helpdesk for assistance. Contact the Helpdesk via phone, email, chat, website, or in person if on campus.



Academic Resources

- [UTEP Library](#): Access a wide range of resources including online, full-text access to thousands of journals and eBooks plus reference service and librarian assistance for enrolled students.
- [University Writing Center \(UWC\)](#): Submit papers here for assistance with writing style and formatting, ask a tutor for help and explore other writing resources.
- [Math Tutoring Center \(MaRCS\)](#): Ask a tutor for help and explore other available math resources.
- [History Tutoring Center \(HTC\)](#): Receive assistance with writing history papers, get help from a tutor and explore other history resources.
- [RefWorks](#): A bibliographic citation tool; check out the RefWorks tutorial and Fact Sheet and Quick-Start Guide.

Individual Resources

- [Military Student Success Center](#): Assists personnel in any branch of service to reach their educational goals.
- [Center for Accommodations and Support Services](#): Assists students with ADA-related accommodations for coursework, housing, and internships.
- [Counseling and Psychological Services](#): Provides a variety of counseling services including individual, couples, and group sessions as well as career and disability assessments.

AMERICAN DISABILITIES ACT

The UTEP Disabled Student Services Office was established for the purpose of providing appropriate and reasonable accommodations as mandated in Section 504 of the Rehabilitation Act of 1973 (<http://www.dol.gov/oasam/regs/statutes/sec504.htm>) and the Americans with Disabilities Act (<http://www.ada.gov/>). If you have needs regarding learning disabilities, please help by reporting your special needs to the course instructor the first week of classes. For addition help, contact the Center for Accommodations and Support Services (CASS):

(915) 747-5148
cass@utep.edu
<http://sa.utep.edu/cass/>

DISCRIMINATION

I do not discriminate, nor will I allow discrimination, on the basis of age, gender, color, ethnicity, national origin, religion, disability, sexual orientation, or favorite sports team. Members of the UTEP community are protected from discrimination and harassment by the State and Federal Laws.

IMPORTANT DATES

Aug 26	Classes begin 😊
Sep 2	Labor Day Holiday – University closed
Nov 1	Final Drop/Withdraw Deadline
Nov 28 & 29	Thanksgiving Holiday – University closed



Dec 5 Last day of class. 😞
Dec 6 Dead Day
Dec 11 Final Exam, 7:00pm – 9:45pm

COPYRIGHT STATEMENT FOR COURSE MATERIALS

All materials used in this course are protected by copyright law. The course materials are only for the use of students currently enrolled in this course and only for the purpose of this course. They may not be further disseminated.