



Syllabus: Research Methods

Spring 2026

Course Information

- **Course Number and Title:** EGS 5915: Research Methods
- **Credit Hours:** 3
- **Academic Term:** Spring 2026

Instructor Information

- **Instructor:** Chris Kelley
- **Office Location:** ARC-1179
- **Office Hours:** T/Th 12:30pm-1:30pm, W 1:30pm-2:30pm, BARC 1179
- **Email address:** ckelly@floridapoly.edu

Course Delivery and Course Description

- **Class Meeting Day, Time & Location:** (By Appointment-Weekly)
- **Course Modality:** In-Person
- **Course Website:** Canvas
- **Official Catalog Course Description:** Research methods used in STEM programs at the graduate level are covered in this course. It is a hands-on class: students develop a research proposal in an area of their choice. Students identifying their thesis research topic and plan their work.
- **Course Prerequisites:** Graduate Standing
- **Co-Requisite:** None
 - **Communication/Computation Skills Requirement (6A-10.030):** No
 - **Required Texts and Materials:** Literature/Research Publications provided by the instructor and/or those sought by the graduate student

Course Objectives and Outcomes

- **Course Objectives:**
Develop knowledge in engineering topics that may include control theory, computer simulation, robotic systems, and others. Apply knowledge and literature review to develop novel models and experiments that improve knowledge in the field. Analyze results and draw conclusions.
- **Course Learning Outcomes:**
Students will be able to demonstrate the ability to do the following:
 - a. Describe fundamental principles in their field of research.
 - b. Develop model simulations or experiments.
 - c. Interpret and explain numerical and/or experimental data.
 - d. Contribute to research discussions.
 - e. Effectively communicate research findings/research plan through written and oral presentations culminating in a comprehensive thesis proposal upon course completion.

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- **Alignment with Program Outcomes:**

Course Learning Outcome	Learning Level (Bloom's / ABET Assessment Example)	Program Learning Outcome (ABET, GenEd, Other)
a. Describe fundamental principles in their field of research.	Knowledge- Ability to recall previously learned material ABET Assessment – weekly assignments and project report	ABET 7 - an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.
b. Develop model simulations or experiments.	Comprehension- Ability to recall previously learned material Analysis- Ability to separate material into component parts and show relationships between parts ABET Assessment- Project Report	ABET 1 – an ability to identify formulate, and solve complex engineering problems by applying principles of engineering, science, and math. ABET 4 - an ability to recognize ethical and professional responsibilities in engineering situations and make in engineering situations and make informed judgements, which must consider the impact of engineering solutions in global, economic, environmental, and societal context. ABET 5 - develop skills to communicate results effectively ABET 7 - an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.
c. Interpret and explain numerical and/or experimental data.	Application – Ability to use learned material in new situations. ABET Assessment – Illustrated in project report and weekly activities	ABET 4 - an ability to recognize ethical and professional responsibilities in engineering situations and make in engineering situations and make informed judgements, which must consider the impact of engineering solutions in global, economic, environmental, and societal context. ABET 5 - develop skills to communicate results effectively ABET 2 - An ability to use the techniques, skills, and modern tools necessary for engineering practice
d. Contribute to research discussions.	Application – Ability to use learned material in new situations. ABET Assessment – Illustrated in weekly activities.	ABET 2- An ability to use the techniques, skills, and modern tools necessary for engineering practice
e. Effectively communicate research findings/research plan through written and oral presentations culminating in a comprehensive thesis proposal upon course completion.	Comprehension, Analysis, and Application ABET Assessment – Illustrated in weekly activities, literature review and thesis proposal	ABET 1 – an ability to identify formulate and solve complex engineering problems by applying principles of engineering, science, and math. ABET 5 -develop skills to communicate results effectively ABET 7 - an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Grading Scale

The grading scale that will be used in the course. (See also [University Grading Policy](#)).

Grading	A	A-	B+	B	B-	C+	C	D	F
Scale	93-100	90-92	86-89	83-85	80-82	76-79	70-75	60-69	0-59

- Percentages that fall between grades will be rounded up.
- Grades will be posted to Canvas for reference only, and students should make sure they are recorded correctly.
- However, there is no guarantee that the percentages or projected grades provided there are correct.
- The instructor will calculate final percentages and will determine final grades regardless of Canvas calculations.

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Assignment/Evaluation Methods

<i>Grade Summary</i>	<i>Grade (%)</i>
<i>Completion of Weekly Assignments</i>	<i>50</i>
<i>Thesis Proposal and Final Presentation</i>	<i>50</i>
Total	100

- **Completion of Weekly Assignments (50% of the total grade)**
Attendance at regular weekly research meetings with completion of assigned research activities from the previous week is required and will be 50% of the student's course grade. Assigned research activities include, but are not limited to, the following: literature review, revisions to research manuscript document, research work, analyzing and interpretation of results, etc. Any extenuating circumstances must be documented in an email or Canvas message to the instructor. Exceptions to any attendance requirements due to extenuating circumstances may be made on a case-by-case basis.
- **Final Report (50% of the total grade)**
A final report/presentation in terms of a thesis proposal will be developed during the course of the semester through weekly activities.
- ****Changes in syllabus and assignment sheets may be modified as deemed appropriate. All changes will be announced.**
- **Late Work/Make-up work:**
Make-up assignments will only be administered if there is a documented approved excused absence (as based upon university policy). Late assignments will not be accepted. Exceptions to any late work/make-up work requirements due to extenuating circumstances may be made on a case-by-case basis. • Official Email Address Florida Polytechnic University email is the official method of communication for the University. Students are required to check their Florida Poly e-mail frequently.

University Policies

Reasonable Accommodations

The University is committed to ensuring equal access to all educational opportunities. The Office of Disability Services (ODS), facilitates reasonable accommodations for students with disabilities and documented eligibility. It is the student's responsibility to self-identify as a student with disabilities and register with ODS to request accommodations. If you have already registered with ODS, please ensure that you have requested an accommodation letter for this course through the [ODS student portal](#), and communicate with your instructor about your approved accommodations as soon as possible. Arrangements for testing accommodations must be made in advance. Accommodations are not retroactive. If you are not registered with ODS but believe you have a temporary health condition or permanent disability requiring an accommodation, please contact ODS as soon as possible: DisabilityServices@floridapoly.edu; (863) 874-8770; www.floridapoly.edu/disability.

Accommodations for Religious Observances, Practices and Beliefs

The University will reasonably accommodate the religious observances, practices, and beliefs of individuals in regard to admissions, class attendance, and the scheduling of examinations and work assignments. (See [University Policy](#).)

Title IX

Florida Polytechnic University is committed to ensuring a safe, productive learning environment on our campus that prohibits sex discrimination and sexual misconduct, including sexual harassment, sexual assault, dating violence, domestic violence and stalking. Resources are available if you or someone you know needs assistance. Any faculty or staff member you speak to is required to report the incident to the Title IX Coordinator. Please know, however, that your information will be kept private to the greatest extent possible. You will not be required to share your experience. If you want to speak to someone who is permitted to keep your disclosure confidential, please seek assistance from the Florida Polytechnic University [Ombuds Office](#), BayCare's Student Assistance Program, 1-800-878-5470 and locally within the community at [Peace River Center](#), 863-413-2707 (24-hour hotline) or 863-413-2708 to schedule an appointment. The Title IX Coordinator is available for any questions to discuss resources and options available.

Academic Integrity

Violations of [academic integrity regulation](#) include actions such as cheating, plagiarism, use of unauthorized resources (including but not limited to use of Artificial Intelligence tools), illegal use of intellectual property, and inappropriately aiding other students. Such actions undermine the central mission of the university and negatively impact the value of your Florida Poly degree. Suspected violations will be fully investigated, possibly resulting in sanctions up to and including expulsion from the university.

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Recording Lectures

Students may, without prior notice, record video or audio of a class lecture for a class in which the student is enrolled for their own personal educational use. Recordings may not be used as a substitute for class participation or class attendance. Recordings may not be published or shared in any way, either intentionally or accidentally, without the written consent of the faculty member. Failure to adhere to these requirements is a violation of state law (subject to civil penalty) and the student code of conduct (subject to disciplinary action). *Recording class activities including, but not limited to, lab sessions, student presentations (whether individually or part of a group), class discussion (except when incidental to and incorporated within a class lecture), and invited guest speakers is **prohibited**.*

Academic Support Resources

- **Library:** Students can access the Florida Polytechnic University Library through the University website and [Canvas](#), on and off campus. Students may direct questions to library@floridapoly.edu.
- **Tutoring and Learning Center:** The Tutoring and Learning Center (The TLC) provides tutoring to all Florida Poly students who may need additional academic support. The TLC is staffed by students who have excelled in the courses they tutor. They offer support by reviewing concepts and materials from class, clarifying points of confusion and providing assistance with learning strategies. While the focus of TLC is to provide support to students in freshman-level courses, upper-level courses are also tutored at the Center. The TLC is located in the IST Commons (second floor).
 - **Knack Tutoring:** Students looking for additional assistance outside of the classroom are advised to consider working with a peer tutor through Knack. Florida Polytechnic University has partnered with Knack to provide students with access to verified peer tutors who have previously aced this course. To view available tutors, visit floridapoly.joinknack.com and sign in with your student account.
- **Academic Success Coaches:** All students at Florida Poly are assigned an Academic Success Coach. Your Academic Success Coach can assist you with academic success strategies. Please visit the Student Success Center on the second floor of the IST building to meet with an Academic Success Coach.
- **Writing Center:** Located on the second floor of the IST (2059/2061), the Writing Center helps students to develop their writing and presentation skills. Consultations are available in person and virtually. For more detail, visit floridapoly.edu/writing-center.

Course Schedule - *Subject to change per course policies.*

Tentative Schedule (Subject to Change)

Important Dates: <https://floridapoly.edu/academics/academic-calendar/index.php>

Week	Topic	Deliverables
1-3	<ul style="list-style-type: none"> • Introduction (Syllabus) • Literature Review • Proper Reference Formatting • Model/Experiment Approach 	1.) Complete the literature review section for thesis proposal 2.) Revise the References Cited section for the thesis proposal 3.) Begin model/experiment design for thesis proposal
4-6	<ul style="list-style-type: none"> • Model/Experiment Approach • Master's Thesis Committee Setup • Literature Review • Model/Experiment Execution • Discussion of Research Findings 	1.) Complete forms for thesis committee setup 2.) Complete Methods section for thesis proposal 3.) Begin Analysis for thesis proposal.
7-9	<ul style="list-style-type: none"> • Literature Review • Model/Experiment Execution • Discussion of Research Findings 	1.) Begin obtaining initial results 2.) Complete initial analysis for the thesis proposal.
10-12	<ul style="list-style-type: none"> • Reporting • Discussion of Research Findings 	1.) Obtain initial results 2.) Complete analysis for the thesis proposal
13-15	<ul style="list-style-type: none"> • Completion of final thesis document • Completion of thesis proposal slides • Thesis proposal defense 	1.) Complete thesis proposal and send to committee to review. 2.) Complete thesis proposal slides 3.) Schedule thesis proposal defense

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