

**RI - MULTIDISCIPLINARY RESEARCH METHODS 3 - FALL 20xx, 1 CREDIT
COURSE SYLLABUS**

EDF 3913 xxx (insert CRN)

Class time:

Classroom:

Instructor:

Email:

Office:

Phone:

Office hours:

Course Overview:

This course supports students that already have a faculty research mentor and have collected some preliminary data as they navigate the undergraduate research process. This course is *inclusive* of multiple disciplines and methodologies, as opposed to a comprehensive survey, and will cover material that is both common to research in all disciplines and specific to the students' research interests. As a part of this course, students will learn how to find presentation and publication opportunities and develop their project into a research presentation for the FAU Undergraduate Research Symposium.

Research Intensive Course:

This course contains assignments designed to help students conduct research and inquiry at an intensive level. If this class is selected to participate in the university-wide assessment program, students will be asked to complete a consent form and submit electronically some of their research assignments for review. Visit the Office of Undergraduate Research and Inquiry (OURI) for additional opportunities and information at <http://www.fau.edu/ouri>.

Learning Goals:

- Practice/improve skills in efficiently reading, comprehending, and critiquing the primary literature
- Synthesize research literature so that you may construct a conceptual framework of the current state of research for your chosen topic/discipline
- Learn the steps involved in finding and applying for research presentation opportunities and ways to fund conference travel
- Refine the written abstract of your current research project
- Prepare a research conference poster that effectively communicates the background literature, methods, preliminary results, and implications of your current research project
- Integrate effective oral presentation skills when developing/preparing for a talk

Required Course Materials:

- A research notebook
- Required readings: will be distributed in class and on Canvas and include the sources listed in the "Selected Readings and Resources" section below

Course Prerequisites and Co-requisite:

1. Multidisciplinary Research Methods 2
* The prerequisite may be waived given demonstrated skill in peer-reviewed literature search, comprehension, and analysis as well as research ethics.
2. Students must have a faculty research mentor, be working on a project, and have collected

some preliminary data

Course Policies and Procedures:

A. Course Evaluation: The course grade will be determined from student participation during class and on-time completion of assignments. Assignment due dates will be announced in class and on Canvas and submitted through Canvas. No late work will be accepted. To receive credit for an assignment, you must complete it to the best of your ability and submit it on time. All grades will be posted to Canvas.

Graded assignments and associated points:

Short writing assignments	(7*10pts) 70 pts
Bibliography and research paper pdfs	(2*20pts) 40 pts
2 Research workshop reflections	(2*10pts) 20 pts
Abstract	30 pts
Research poster	70 pts
Oral presentation of poster	50 pts
Total	250 pts

Assignment descriptions:

Short writing assignments: Summarize, reflect on, and critique aspects of topics discussed in class by providing well-thought-out, revised, logical paragraphs. Length and specific writing prompt will be provided for each particular assignment.

Bibliography and research paper pdfs: Find, read, understand, and critically analyze peer reviewed research publications using the skills gained in this course. Provide an annotated bibliography matching the template provided to you and submit pdfs of the papers you chose.

2 Research workshop reflections: Attend a minimum of two research related workshops or seminars before the last day of the class. Submit a 1 paragraph summary of each workshop along with comments on what new things you learned and how the workshop/seminar has bettered you as a researcher.

Abstract: Revise your previous abstract with the goal of creating a logical, descriptive, concise, 1-paragraph summary of your project.

Poster and oral presentation: You will learn to create a poster and associated 3-minute oral presentation to deliver at FAU's Undergraduate Research Symposium. During this intensive process, you will improve your research, organization, and communication skills while sharing your research with faculty and peers. Specifically, we will address the following:

1. Knowledge:
 - a. Find and use scholarly resources, such as peer reviewed journal articles (incorporate those from your annotated bibliography).
 - b. Understand, analyze, evaluate, and build on the background scholarly literature pertaining to your project and discipline.
 - c. Appropriately incorporate the proper vocabulary of your field.
 - d. Describe, compare, contrast, and critique key theoretical frameworks applicable to your project.
2. Formulate Questions:
 - a. Explicitly state your research question that addresses an identified gap in the current research.

- b. Justify your rationale for why it is *important* to address this question/problem.
- 3. Plan of Action:
 - a. Describe or diagram your plan for answering your research question with the techniques and tools available to you in your lab. It should be clear and concise and based on relevant and current methodologies within your discipline.
- 4. Critical Thinking:
 - a. Assess previous literature critically to determine its strengths and pitfalls and how that relates to your proposed project.
 - b. Analyze relationship between your data and research question.
 - c. Interpret your findings, making sure to address any unexpected findings.
 - d. Anticipate potential future outcomes from your project.
 - e. Recognize potential sources of error in your interpretation of the data.
- 5. Ethics:
 - a. Learn the key concepts pertaining to research integrity and become familiar with the related groups and resources available at FAU.
 - b. Identify research ethics considerations/concerns in your own project. With the help of your mentor, formulate your research plan based on these considerations.
 - c. Become certified as necessary based on what your project requires (IRB, IACUC, EH&S, CITI [strongly recommended for all], etc...).
 - d. Integrate what you have learned into the plan and execution of your project and convey that clearly in your presentations.
 - e. It is strongly recommended that students complete the Responsible conduct of research (RCR) certificate through the CITI training of academic research on-line at <http://www.fau.edu/graduate/events/citi-training.php>. Students are also encouraged to attend FAU OURI workshops on topics related responsible conduct of research. Information on OURI workshops can be found here http://www.fau.edu/ouri/student_workshops.php
- 6. Communication:
 - a. Effectively and persuasively convey your research project and results in your poster and presentation.
 - b. Construct a poster and deliver a short presentation that targets an educated, non-expert audience.
 - c. Visually communicate your research results using graphs, charts, and tables.
 - d. Incorporate presentation guidelines provided by the instructor on content and formatting and construct a well-organized, informative, and engaging presentation.
 - e. Properly reference previous studies/works pertaining to your project.
 - f. Florida Atlantic University's Undergraduate Research Symposium: Students are encouraged to submit their research projects to the Undergraduate Research Symposium held at Florida Atlantic University (Boca Raton campus) each Spring Semester. Use the following link for information: http://www.fau.edu/ouri/undergrad_symposium.php

B. Grading Scale: The following scale will be used for computing the final grade.

A	90 -100%
B	80 - 89%
C	70 - 79%
D	60 - 69%
F	less than 60%

C. Attendance Policy:

Students are expected to attend all of their scheduled University classes and to satisfy all academic objectives as outlined by the instructor. The effect of absences upon grades is determined by the instructor, and the University reserves the right to deal at any time with individual cases of non-attendance.

Students are responsible for arranging to make up work missed because of legitimate class absence, such as illness, family emergencies, military obligation, court-imposed legal obligations or participation in University-approved activities. Examples of University-approved reasons for absences include participating on an athletic or scholastic team, musical and theatrical performances and debate activities. It is the student's responsibility to give the instructor notice prior to any anticipated absences and within a reasonable amount of time after an unanticipated absence, ordinarily by the next scheduled class meeting. Instructors must allow each student who is absent for a University-approved reason the opportunity to make up work missed without any reduction in the student's final course grade as a direct result of such absence.

If a student must miss a class, documentation must be provided to the instructor by the next class period, or the student's participation grade will be impacted. Only 1 excused absence is permitted; more than one absence will result the loss of 1 letter grade per absence.

D. Classroom Etiquette Policy: University policy on the use of electronic devices states: "In order to enhance and maintain a productive atmosphere for education, personal communication devices, such as cellular telephones and pagers, are to be disabled in class sessions." You may be asked to leave the class session for noncompliance.

E. Student Honor Policy: Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty is considered a serious breach of these ethical standards, because it interferes with the university mission to provide a high quality education in which no student enjoys an unfair advantage over any other. Academic dishonesty is also destructive of the university community, which is grounded in a system of mutual trust and places high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. For more information, see University Regulation 4.001.

http://www.fau.edu/ctl/4.001_Code_of_Academic_Integrity.pdf

F. Disabilities Statement: In compliance with the Americans with Disabilities Act Amendments Act (ADAAA), students who require reasonable accommodations due to a disability to properly execute coursework must register with Student Accessibility Services (SAS) and follow all SAS procedures. SAS has offices across three of FAU's campuses – Boca Raton, Davie and Jupiter – however disability services are available for students on all campuses. For more information, please visit the SAS website at www.fau.edu/sas/.

G. Counseling and Psychological Services (CAPS) Center: Life as a university student can be challenging physically, mentally and emotionally. Students who find stress negatively affecting their ability to achieve academic or personal goals may wish to consider utilizing FAU's Counseling and Psychological Services (CAPS) Center. CAPS provides FAU students a range of services – individual counseling, support meetings, and psychiatric services, to name a few – offered to help improve and maintain emotional well-being. For more information, go to <http://www.fau.edu/counseling/>.

H. SPOT Evaluation:

At the end of the semester, SPOTs (Student Perception of Teaching forms) are to be completed online. Faculty no longer provide paper SPOTs in class at the end of the semester. Please remember

to complete the SPOTs for the classes in which you are enrolled. In order to complete the SPOT, please go to <https://spot.fau.edu>. The instructor will provide in-class time at the end of the semester for you to complete the SPOT in class using your smartphone, tablet, or laptop.

I. Important Dates:

This schedule is subject to change at any time by the instructor. Changes may be announced via blackboard and/or verbally in class. This schedule also includes dates based upon the current university academic calendar. You are responsible for checking the academic calendar on the university website for any changes during the academic term.

University-set dates:

First day of classes:

Last day to drop/add:

Last day to withdraw:

Spring Break/Holidays:

Last day of classes:

Schedule of course topics:

Week	Dates	Topic	Homework (due following Thursday night)
1	1/12	Course introduction, discuss class expectations Discuss research interests and previous experience	<ul style="list-style-type: none"> • Read syllabus • Describe your previous research experience and your goals for our class
2	1/19	Review on finding primary literature Discussion on comprehending and evaluating primary literature	<ul style="list-style-type: none"> • Find and read 2 news articles pertaining to your research interest • Find and read 3 new, peer reviewed articles related to your topic • Create an annotated bibliography of these 3 articles (all due in 2 weeks)
3	1/26	Guest Refworks workshop	Finish previous week's assignment
4	2/2	Workshop on creating graphs & basic data analysis	Submit sketches of at least 2 potential research figures based on your current project
5	2/9	Workshop on creating graphs & basic data analysis – review individual submissions Writing abstracts	<ul style="list-style-type: none"> • Revise your graphs • Write an abstract of your current research project
6	2/16	Discussion on developing a poster presentation: methods, results	<ul style="list-style-type: none"> • Revise & submit your abstract to OURI by the symposium abstract deadline • Submit your methods & results text
7	2/23	Discussion on developing a research poster: introduction, discussion, general poster formatting	<ul style="list-style-type: none"> • Revise your methods & results section • Submit your intro & discussion • Combine all sections into a properly-formatted poster
8	3/2	Peer review of poster	<ul style="list-style-type: none"> • Revise your poster based on peer and instructor feedback
9	3/9	Spring Break, no class	
10	3/16	Review on creating and delivering effective, short oral presentations to accompany a research poster	Practice oral presentation
11	3/23	Practice presentations	Revise oral presentation based on feedback in class
12	3/30	Present poster at Undergraduate Research Symposium	

13	4/6	Discussion on turning your poster into an outline for your manuscript	Find 2 more articles, read them, and add them to your bibliography
14	4/13	Guest talk: Intellectual property	Reflect of your experience in research and in the FAUHS Research Program so far and articulate the 3 most valuable things you learned and 3 suggestions for improvement
15	4/20	FAUHS Research Program reflection discussion	Notify the instructor of your of research plans

Selected Readings and Resources List:

- Andrade, C. 2011. How to write a good abstract for a scientific paper or conference presentation. *Indian J Psychiatry*. 53(2): 172-175.
- How to construct a *Nature* summary paragraph. *Nature* guide to authors: First paragraphs for Letters. Information sheets 3d. www.nature.com/nature/authors/gta
- Raff, J. 2013. How to read and understand a scientific paper: a guide for non-scientists. Published on <https://violentmetaphors.com>.
- A rough guide to spotting bad science. 2014 Compound Interest. www.compoundchem.com.
- Shiffman, D. 10 Tips for grad students to make the most of a scientific conference. www.southernfiredscience.com.
- Professionalism. WebGURU: Guide for Undergraduate Researchers. <http://www.webguru.neu.edu/professionalism>. Accessed 9/8/16.
- Zielinska, E. 2011. Poster Perfect: How to drive home your science with a visually pleasing poster. The-scientist.com. <http://www.the-scientist.com/?articles.view/articleNo/31071/title/Poster-Perfect/>. Accessed 3/2/17.
- CITI Program. Responsible conduct in research course. <https://about.citiprogram.org/en/homepage/>.
- The Office of Research Integrity. <https://ori.hhs.gov/>
- Resnick, D. 2015. What is Ethics in Research & Why is it Important? National Institute of Environmental Health Sciences. <https://www.niehs.nih.gov/research/resources/bioethics/whatis/>. Accessed 4/12/17.