

Research Methods

HLP 6535 | Class # 21214 | 3 Credits | Fall 2024

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Course Info

INSTRUCTOR

James Cauraugh, Ph.D.
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Preferred Method of Contact: Email

OFFICE HOURS

Virtual by appointment. Send an email to request a time to Zoom.

MEETING TIME/LOCATION

Tuesday: Period 6 – 8 (12:50 – 3:50 PM); FLG
Access course syllabus and unofficial grades via Canvas on UF e-Learning (<https://elearning.ufl.edu/>) & the Canvas mobile app by Instructure

COURSE DESCRIPTION

Fundamental research methods concepts in health and human performance will be explored. Graduate students will demonstrate their knowledge of the course materials by analyzing, interpreting, and summarizing published research. Critical evaluation techniques will be developed while discussing research hypotheses, methodological approaches, experimental designs, and appropriate statistical analyses. To improve a succinct exchange of knowledge as you enter the scientific arena we will practice writing journal article critiques, abstracts, and introductions.

REQUIRED AND RECOMMENDED MATERIALS

1. **Strunk, W., & White, E. B.** (2000). *The elements of style* (4th ed.). New York: Macmillan (eBook).
2. **Cauraugh, J. H.** (2020). *Research Methods: Functional Skills – Third Edition*. ISBN: 978-1-939337-34-4 (eBook).

COURSE FORMAT

Ideally, you will read the weekly topics before attending lectures. In a flipped-classroom format, lectures will provide additional information, encourage interactions, and seek answers to relevant questions. Our frequent interactions will embrace active learning while solving problems and discussing various science topics.

COURSE LEARNING OBJECTIVES:

1. *Critique research articles and determine the quality of publications*
2. *Outline the processes related to manuscript reviews, writing, authorship, and journal impact*
3. *Select a topic and conduct a literature search and create a small library of references*

4. *Evaluate experimental designs and choose appropriate statistics to analyze data*
5. *Analyze data sets with a t test, F test, correlation, and regression*
6. *Visually and verbally present experimental designs, data, and findings*
7. *Practice the scientific method as you formulate a research question, generate a research hypothesis, and design a study*
8. *Identify issues related to methodology and discuss guidelines to improve scientific rigor and reproducibility*
9. *Discuss issues related to research ethics and responsible conduct of human and animal research*

Course & University Policies

ATTENDANCE POLICY

Class attendance is expected.

PERSONAL CONDUCT POLICY

UF graduate students are bound by *The Honor Pledge*, which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at UF, the following pledge is either required or implied: **“On my honor, I have neither given nor received unauthorized aid in doing this assignment.”**”

The Honor Code (<http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>) specifies several behaviors that are in violation of this code and the possible sanctions. Further, you are obliged to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, then please consult with your professor.

EXAM MAKE-UP POLICY

A student experiencing an illness should visit the UF Student Health Care Center or their preferred healthcare provider to seek medical advice and obtain documentation. If you have an illness, family emergency or death, please contact the Dean of Students Office (www.dso.ufl.edu) and follow the DSO Care Team procedures for documentation and submission of a request for make-up assignment (<https://care.dso.ufl.edu/instructor-notifications/>). The DSO will contact the instructor. Do not provide any documentation to the instructor regarding illness or family emergency. This is your personal and protected information. The DSO is qualified to receive and verify the documents you provide. The instructor will follow the recommendations from the DSO. Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found in the online catalog at: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>.”

ACCOMMODATING STUDENTS

Students who experience learning barriers may request academic accommodation. Contact the Disability Resource Center by visiting their Get Started page at <https://disability.ufl.edu/students/get-started/>. Early in the semester, share your accommodation letter and discuss access needs with your professor.

COURSE EVALUATIONS

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be

notified when the evaluation period opens and can complete evaluations through an email sent from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

Grading

UF's catalog provides detailed information regarding current UF grading policies:

<https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/>. Any requests for additional extra credit or special exceptions to these grading policies may be interpreted as an honor code violation (i.e., asking for preferential treatment) and will be managed accordingly.

Format on exams: combination of multiple-choice questions, definitions, short essays, long essays, calculations, and interpreting findings.

<i>Evaluation Component</i>	<i>Points Per Component</i>	<i>Percentage of Total Grade</i>
Exam 1: October 8	40	40%
Exam 2: Dec. 3 [Individual Preference]	25	25%
Data Analyses	15	15%
Writing Assignments	20	20%
Total	100	100%

GRADING SCALE

Exam percentages will be posted on Canvas. However, official grades are calculated in an Excel file on my computer. An Excel printout is always available after the exams.

Letter Grade	Total Points Required to Earn Each Letter Grade
A	≥ 91
A-	89
B+	88
B	81
B-	79
C+	78
C	71
C-	69
D+	68
D	61
D-	59
E	≤58

Weekly Course Schedule:

CRITICAL DATES & UF OBSERVED HOLIDAYS

- Labor Day, Monday, September 2nd
- Veteran's Day: Monday, November 11th
- Thanksgiving Holiday: Wednesday, November 27 – Friday, November 29th

Class	<i>Research Methods: Functional Skills (3rd edition)</i>	Content
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1	Syllabus & Preface	Overview; Approach to Science; Importance of RM & Science
2	Chapter I: 1.1 – 1.5	Causal Relationships; Types of Research; Two Supreme Problem Solvers
3	1.6 – 1.11	Science, Exp. Design, Variability, & Statistics
4	Chapter II: 2.1 – 2.5	IVs: Main Effects, & Interactions Voluntary Motor Actions: ME & Interactions
5	2.6 – 2.9	MEs & Interactions: Matrix Visually Displaying Two-way Interactions Two Frequently Used Statistics: <i>t</i> & <i>F</i> tests
6	Chapter III: 3.1 – 3.4	Designs Vary by Three Criteria Different Designs: One-way & Two-way
7	3.5 – 3.8	Designs: Between-subjects, Within-subjects, & Mixed Review
8	Chapter IV: 4.1 – 4.7	Statistical Significance & Reminders One-tailed & Two-tailed Tests Multiple Comparison Procedures Null & Alternative Hypotheses <i>F</i> Table Critical Values Truth Table & Power
9 & 10	Chapter V: 5.1 – 5.7	Internal and External Validity Eight Internal and Four External Threats Three Internally Valid True Experiments Three Pre-experimental Designs
11 & 12	Chapter VI: 6.1 – 6.10	Parametric & Nonparametric Statistics ANOVA Assumptions & Summary Table Chi-Square, Correlations, <i>t</i> & <i>F</i> Tests Hick-Hyman Law
	Oct. 8	Exam 1: 40 points
		eBook Chapters: Preface, I, II, III, IV, V, & VI Strunk & White

13 & 14	Chapter VII: 7.1 – 7.9	Research Integrity & Oath for Scientists Ethics in Life & Science Institutional Review Board Protecting Rights of Individuals
15 & 16	Chapter VIII: 8.1 – 8.12	Writing: Clear, Concise, & Correct Four Evaluation Criteria & Questions to Ask Increase the Quality of Our English Language
17	Chapter IX: 9.1 – 9.7	Analysis of Covariance, Meta-Analysis, & Regression Analyses Multivariate Statistics & Saving Trees
18	Chapter X	Three Clinical Research Steps
Dec. 3	Exam 2: 25 points	Individual Preference or eBook Chapters VII, VIII, IX, & X

Graduate Student Success

Your RM experiences will be meaningful given that you actively use the information in the eBook (*Research Methods: Functional Skills, 2020; Third Edition*) as well as the information presented and discussed in lectures. The teaching style of this course is primarily reciprocal interaction with frequent, relevant questions used to practice memory retrieval of concepts. Graduate students must be able to use verbally explain and clearly write about RM concepts. In this flipped classroom, you should read the eBook chapters before class and be prepared to speak about scientific concepts while supporting your statements with logical thinking and empirical evidence. Student answers and questions are encouraged at any time during our interactions. Importantly, the course information is readily learned when graduate students give sincere efforts and embrace the multiple topics involved in “playing the games that scientists play.” **Be a graduate student who reaches your intellectual potential!**

Required Textbooks: Two e-Books

1. Strunk, W., & White, E. B. (2000). *The elements of style* (4th ed.). New York: Macmillan (eBook).
2. Cauraugh, J. H. (2020). *Research Methods: Functional Skills – Third Edition*. (eBook).

The two eBooks are at three electronic sources. Cut and paste a source into your browser.

1. **Smashwords:** <http://www.smashwords.com/books/search?query=cauraugh>
 - a. [Download a free Kindle app to your laptop computer, iPad, or iPhone.](#)
 - b. [Download a version to read on your Kindle app.](#)
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 - d. When you buy the book on Smashwords, be sure to get the iBook version. **Download the ‘epub’ file, then you will be able access and read in iBooks. Click epub (inside the red circle) as shown in the following screen shot.**



Research Methods: Functional Skills - 3rd Edition

By James Cauraugh

\$48.00

Category: Essay » Author profile, Nonfiction »
Science & Nature » Reference

Published: Dec 30, 2012

Words: 40,724

Language: American English

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2. Apple iBooks; For Apple iPad/iPhone/iPod Touch, download the free Apple iBooks app and buy the eBooks on your iTunes account.

<https://books.apple.com/us/book/research-methods-functional-skills-3rd-edition/id1278898939>

3. Amazon – Kindle or Kindle Fire app reading:

<http://www.amazon.com/dp/B00AUZPSSY>

Getting Help

HEALTH & WELLNESS

- U Matter, We Care: If you or a friend is in distress, please contact umatter@ufl.edu or 352 392-1575
- Counseling and Wellness Center: <https://counseling.ufl.edu/>, 352-392-1575
- Sexual Assault Recovery Services (SARS) - Student Health Care Center, 392-1161
- University Police Department, 392-1111 (or 9-1-1 for emergencies) <http://www.police.ufl.edu/>

ACADEMIC RESOURCES

- E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu.
<https://lss.at.ufl.edu/help.shtml>
- Career Connections Center, Reitz Union, 392-1601. Career assistance and counseling.
<https://career.ufl.edu/>
- Library Support, <http://cms.uflib.ufl.edu/ask>. Numerous ways to receive assistance with respect to using libraries or finding resources.
- Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring.
<http://teachingcenter.ufl.edu/>
- Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and authoring papers.
<http://writing.ufl.edu/writing-studio/>
- Student Complaints On-Campus: <https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/> On-Line Students Complaints: <http://distance.ufl.edu/student-complaint-process/>

APK ACCESSIBILITY

- Dr. Ashley Smuder, Liaison, asmuder@ufl.edu
- Dr. Joslyn Ahlgren, Undergraduate Coordinator, jahlgren@ufl.edu
- Dr. Stephen Coombes, Graduate Coordinator, scoombes@ufl.edu