

RESEARCH METHODS

APK 4050 ~ 3 CREDITS ~ SPRING 2022

INSTRUCTOR: Ashley J. Smuder, PhD
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Email: asmuder@ufl.edu
Preferred Method of Contact: Email

OFFICE HOURS: F | Period 3 (9:35 AM – 10:25) or by appointment

MEETING TIME: M W F | Period 9 (4:05 PM – 4:55 PM)

MEETING LOCATION: FLG 265

COURSE DESCRIPTION: This course is designed to introduce basic research methodology and design, which includes statistical analysis techniques used in applied physiology and kinesiology. Students will demonstrate their knowledge of the course materials by analyzing, interpreting and summarizing research writing in professional journals and by examining a research study.

PREREQUISITE KNOWLEDGE AND SKILLS: APK major with 3, 4, 6 or 7 classification.

REQUIRED AND RECOMMENDED MATERIALS: Research Methods in Kinesiology and the Health Sciences by Susan Hall and Nancy Getchell. ISBN-13:978-0-7817-9774-0. Access to the internet, a PC or MAC computer with up-to-date Microsoft software is required. Class materials will also include lecture slides, research articles and other online resources. These materials will be made available through CANVAS. Students are responsible for reading all assigned materials.

COURSE FORMAT: There are three major modules that are ~4 weeks in duration. There are online assignments due each week that consist of a mix of discussion posts, worksheets and quizzes. After each module there will be an online, in-class midterm. The course will entail in-person instruction on the scheduled days/times. *There will be no recordings of the lectures posted.* Attendance of all scheduled meetings in person is required. Usually on Mondays and Wednesdays there will be a lecture while on Fridays

there will be application of the material, group discussion and quiz. In the last part of the semester there will be research article presentations. Please see the tentative schedule for more detailed information.

COURSE LEARNING OBJECTIVES:

Upon completion of this course, students will be able to:

1. Identify the steps involved in scientific method
2. Identify issues related to methodology and discuss guidelines to enhance scientific rigor and reproducibility
3. Discuss issues related to research ethics and responsible conduct of human and animal research
4. Outline the processes related to manuscript writing/submission/review/publication, authorship and journal impact factors
5. Conduct a literature search and manage references
6. Critique and present primary research articles
7. Formulate a research question/hypothesis and design a research study to address the question
8. Choose appropriate statistical tools to analyze data
9. Visually and verbally present data and describe experimental design and results

COURSE AND UNIVERSITY POLICIES:

ATTENDANCE POLICY: Requirements for class attendance and make-up work in this course are consistent with university policies. Students are expected to attend all scheduled meetings and actively participate in all class activities and group discussions to receive full participation points. Please note: The University has specific reasons that are acceptable for missing class which apply to both undergrad and grad students: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>.

PERSONAL CONDUCT POLICY: Students are expected to exhibit behaviors that reflect highly upon themselves and our University. Specifically, you are expected to follow the UF Student 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 the University of Florida, 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 a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obliged to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult the instructor in this class.

QUIZ AND EXAM MAKE-UP POLICY: Not taking a quiz or exam during the scheduled class time will result in a zero on the quiz. The University has specific reasons that are acceptable for missing class:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>. If you are ill or have an emergency that prevents you from taking the quiz or exam at the scheduled time, it is your responsibility to contact the instructor as soon as possible to try and schedule a make-up. Documentation of the illness or emergency will be required. Any make-up quiz will be at the discretion of the instructor. Scheduling make-up quizzes is the responsibility of the student and should be done – if at all possible – before the scheduled quiz or exam. 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/>). They will contact your instructor so that you do not have to provide documentation to individual instructors for a make-up.

COMMUNICATION: Students are responsible for reading emails sent by the instructor and course announcements on CANVAS. The best way to communicate with the instructor is by email. Students should expect to receive a response usually within 24 to 48 hours. All course grades will be posted on CANVAS. Any discrepancies should be pointed out to the instructor *as soon as possible*, and *before* the last day of class.

TECHNOLOGY CONSIDERATIONS: Instruction will be delivered in person during the scheduled days/times. Students are required to bring their laptop/tablet to class especially on Fridays. Surfing the web, checking your email, making Facebook posts, or anything of that nature is unacceptable and strictly prohibited. Please keep your cell phone on silent. Recording of student presentations, in class assessments, private conversations between students in the class or between a student and the faculty during a class session is strictly prohibited. The content of this course may not be used for any commercial purpose or published without the written consent of the instructor. To “publish” means to share, transmit, circulate, distribute, or provide access to material, regardless of format or medium, to another person, including but not limited to another student within the same class section. Students found in violation of these policies will be subject to discipline under UF’s Conduct Code.

ACCOMMODATING STUDENTS WITH DISABILITIES: Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the Disability Resource Center by visiting their Get Started page at <https://disability.ufl.edu/students/get-started/>. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester. Accommodations are not retroactive; therefore, students should contact the office as soon as possible in the term for which they are seeking accommodations.

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 the email they receive 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/>.

GETTING HELP:

Health and 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>. Various ways to receive assistance with respect to using the 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 writing 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/>

INCLUSION, DIVERSITY, EQUITY AND ACCESSIBILITY RESOURCES

For suggestions or concerns related to IDEA, please reach out to any of the following:

- Dr. Rachael Seidler, APK Graduate Coordinator, rachaelseidler@ufl.edu
- Dr. Joslyn Ahlgren, APK Undergraduate Coordinator, jahlgren@ufl.edu

GRADING:

Students will be given assignments throughout the semester and they must be completed on time. No late assignments will be accepted. The following outlines the point-accruing components of the course. Grades will be determined by the composite of 5 primary sources:

A: 22.5% DISCUSSION ASSIGNMENTS (45 points total): Weekly exercises will be provided on CANVAS. Approximately 9 discussion assignments will be administered throughout the semester that are comprised of exercises on EXCEL, other programs, discussion boards and writing assignments.

B: 22.5% Quizzes (45 points total): There will be 9 quizzes in this course. Quizzes will focus on the material presented during lectures and the reading assignments. Some quizzes will be administered during normal class time while others will be take-home. Detailed information will be provided in advance on CANVAS.

C: 30% EXAMS (60 points total): There will be three exams during this course. Questions will be multiple choice, true/false or matching on conceptual material and problem solving, with less emphasis on memory. Exams will be ~20 questions. You will be given the full 50-minute class period to complete the exams.

D: 15% RESEARCH ARTICLE PRESENTATION (30 points total): Each student will choose a research article of interest to them and develop a presentation of that article based on the criteria covered throughout the course. We will be working on this project throughout the semester, so it should reflect an outcome of your work throughout. The final research presentation will be presented during the last week of class.

E: 10% ATTENDANCE AND PARTICIPATION (20 points total): Students are expected to attend all scheduled meetings and contribute to group assignments and discussions to receive full participation points. More information on participation points will be provided. Please note that the University has specific reasons that are acceptable for missing class which apply to both undergrad and grad students:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>.

FINAL GRADE: Canvas will keep track of your raw grades. However, it is an imperfect system and your final grade may not be accurately determined by CANVAS. Personally, I would ignore your ongoing grade on CANVAS and just look at how you are doing relative to the total points for each assignment. I can give you a detailed grade listing and calculation at the end of the semester if you need it.

GRADING SCALE: Students take quizzes using Canvas and scores are available immediately upon submission. Grades for materials being evaluated by the instructor

will be posted within one week of submission. Students should contact the instructor as soon as possible if they feel there is an error in the grading of individual questions or submission of final grades. Final course grades will be assigned based on the table below. The grade achieved by the student is final. There is no rounding of grades in any circumstance. Any requests for additional extra credit or special exceptions to these grading policies will be interpreted as an honor code violation (i.e., asking for preferential treatment) and will be handled accordingly. More detailed information regarding current UF grading policies can be found here:

<https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/>.

Letter Grade	A	B+	B	C+	C	D+	D	E
Percent of Total Points	90.00-100%	87.00-89.99%	80.00-86.99%	77.00-79.99%	70.00-76.99%	67.00-69.99%	60.00-66.99%	0-59.99%
GPA of Each Letter Grade	4	3.33	3	2.33	2	1.33	1	0

SUCCESS AND STUDY TIPS:

Here are some tips that have proven useful for many:

- To succeed in this course, students should prepare regularly and in advance. Lecture slides are available online for previewing and reviewing content. Students should check topics and assignments on the course schedule above, read assigned text and attend class to ask questions.
- The course is designed so that if you do the assignments, review the material each week and work hard at your research project, you will likely earn a very good grade.
- Concentrate on the material and get as much out of it as you can to prepare yourself for a professional life rather than becoming anxious about winning a high grade. It is largely a skills class, not a “weed-out” class. Again, most student who do what is asked of them do very well.
- Look up material that inspires you. If you come across something that connects to class content, share as a Discussion on Canvas. We’re lucky to have so many resources through the internet.
- Check Canvas for announcements. Adjustments to the schedule and edits/clarifications to topics discussed in class will be posted there.
- Things happen; that’s life. If there are some majorly overwhelming things happening during your semester, send me an email and even schedule a meeting with me. We’ll figure out steps you should take in hopes of wrapping up the course well.

WEEKLY COURSE SCHEDULE:

Tentative dates and course plan:

Date	Topics Covered	Module
5-Jan	Course Intro	1 Scientific Method, Writing and Reviewing
7-Jan	How to Approach Scientific Problems (Chapter 1)	
10-Jan	Research Writing (Chapter 2) Reviewing Writing	
12-Jan	Reviewing Writing (Chapter 3)	
14-Jan	Quiz and Discussion Assignment	
17-Jan	No class – Martin Luther King Jr Day	
19-Jan	Research Proposals and Databases (Chapter 4 and 16)	
21-Jan	Quiz and Discussion Assignment	
24-Jan	Sensitivity and Specificity	
26-Jan	Internal and External Validity	
28-Jan	Quiz and Discussion Assignment	
31-Jan	Types of Research	
2-Feb	Choosing a Research Project	
4-Feb	Midterm 1	
7-Feb	Descriptive Statistics (Chapter 10)	
9-Feb	Hypothesis Testing (Chapter 10)	
11-Feb	Quiz and Discussion Assignment	
14-Feb	Comparing Two Populations (Chapter 12 and 13)	
16-Feb	Paired and Non-Parametric Datasets (Chapter 12 and 13)	
18-Feb	Quiz and Discussion Assignment	
21-Feb	Comparing Groups of Nominal Data	
23-Feb	Linear Regression (Chapter 11)	
25-Feb	Quiz and Discussion Assignment	
28-Feb	ANOVA	
2-Mar	Post Hoc Tests, Multi-way ANOVA and ANCOVA	
4-Mar	Midterm Exam 2	
7-11-Mar	No class – Spring Break	3 Ethics of Research
14-Mar	Understanding Research Ethics (Chapter 5)	
16-Mar	Lab Notebooks	
18-Mar	Quiz and Discussion Assignment	
21-Mar	Working with the IRB	
23-Mar	Qualitative Research (Chapters 7 and 8)	
25-Mar	Quiz and Discussion Assignment	
28-Mar	Undergraduate Researchers Guest Lecture	
30-Mar	Graduate Researchers Guest Lecture	
1-Apr	Work on Presentations	
4-Apr	Work on Presentations	
6-Apr	Working with the IACUC	
8-Apr	Quiz and Discussion Assignment	
11-Apr	EH&S	
13-Apr	Tips for Enhancing Early-Stage Career Development	
15-Apr	Midterm Exam 3	
18-Apr	Research Presentations	
20-Apr	Research Presentations	