

Advanced Research Methods in Education

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Class meets: Tuesday & Thursday 1-2:15 in 226 Appleby Hall

Office hours: Flexible and by appointment (in person or by Zoom)

Department Mission Statement

Educational psychology involves the study of cognitive, emotional, and social learning processes that underlie education and human development across the lifespan. Research in educational psychology advances scientific knowledge of those processes and their application in diverse educational and community settings. The department provides training in the psychological foundations of education, research methods, and the practice and science of counseling psychology, school psychology, and special education. Faculty and students provide leadership and consultation to the state, the nation, and the international community in each area of educational psychology. The department's scholarship and teaching enhance professional practice in schools and universities, community mental health agencies, business and industrial organizations, early childhood programs, and government agencies.

Seminar Description

This course provides an in-depth examination of quantitative, qualitative, and mixed methods research methodologies and issues associated with their use in educational research. With information from the readings providing guidance, students will select a research topic of their choice and construct a research proposal that contains a narrative literature review/significance section and research methods section. The literature review must justify the significance and the unique contribution. The Research Methods section must describe the methods and how they lead to the unique contribution. For the research proposal, students use the guidelines in Appendix A and/or Appendix B of the textbook.

Specific examples of research questions are introduced through readings (e.g. Chapter 2 of text), class discussion, and class presentations. At the conclusion of the class, students should (1) be able to discuss various models of scientific inquiry and the role of theories; (2) have a thorough understanding of various quantitative, qualitative, and mixed methods research methodologies in education and their strengths and weaknesses; (3) propose a study in an area of their choice and outline the methodology; (4) develop an in-depth literature review of a research topic. The course will prepare students for the literature review of their oral prelim paper and for their dissertation research proposal in the Department of Educational Psychology. Depending on where students are in their program, they are encouraged to work on their M.A. Plan B research proposal, predissertation research proposal, oral prelim paper, or dissertation research proposal.

Seminar Format

Class sessions will entail a mix of learning activities, including small group activities and lecture. However, this is *primarily* a discussion-based class, and your preparedness and engagement are key to its success. As doctoral students, it is expected that you will attend all course meetings (excepting legitimate absences) and participate actively in class.

Diversity, Equity, and Inclusion

Scientific epistemology is determined in full or in part by the dominant actors within a given social system. For our purposes, this means largely white males from Western nations. Moreover, scientific research has historically excluded women and BIPOC individuals both as scientists and as research subjects. On many occasions, scientists were deliberate in promulgating racism, sexism, ableism, trans- and homophobia, and other forms of discrimination. This means that both *what we know* and *how we know it* are shaped by social forces of the past and present. In the interest of diversity and anti-racism, we will all (including your instructor) work each week to acknowledge and critically evaluate the content of this course with these issues in mind. Please feel free to let the instructor know in class or privately if you identify any opportunities to better represent diversity within our course.

Course Outline, Topics & Assignments

Assignments

Assignment 1. For assignment 1, read a dissertation in your field. If you are imbued with Gopher pride, perhaps limit your search to [UMN dissertations](#). If you find yourself less keen on burrowing rodents, [look elsewhere](#). As you review the dissertation, complete the dissertation review rubric posted on Canvas (a link to a Google form). Submit the completed Google form. (10 pts.)

Assignment 2. For a topic of your choosing, prepare a narrative literature review following the guidelines of Chapter 3 in your text. The review should be no more than 10 (not including references). The closing section should include a summary of overall findings and conclusions, as well as the major issues that remain unaddressed. It should culminate in a clear next-step in the form of a research question. You should include a clear statement on the significance of your research question. This is that this assignment should lead naturally into a plan (Assignment 3) for researching the question that you highlight in Assignment 2. Note that 10 pages is short for a literature review. As such, you are encouraged to stay focused with a narrative that leads logically to your research question (consider the introductory sections of high-quality published studies in your field as a model). Submit the assignment in Word format to Canvas. (30 pts.)

Assignment 3. This assignment builds on Assignment 2. To the literature review of Assignment 2, add a research plan. The literature review and research plan will be sent to all other students in the class for review as part of the mock grant review process of Assignment 4. The research plan should follow the relevant guidelines in Parts 2 and 3 of the text. It should describe the participants, the measurement instruments, the procedures for gathering the data, and the analyses. Some justification should be provided for the sample size, and this

justification may involve a power analysis. Quantitative research plans should always clearly state the independent (predictor) variable(s), the dependent (criterion) variable(s), the covariates, the moderators, and the mediators. The research questions should state the questions so that they include not only the independent and dependent variables, but also the covariates, moderators, and mediators, as appropriate. Before submitting the assignment, do a final review of your research plan using the checklist in section 14-6 of the text. Qualitative research plans should clearly state respondents, sampling methods, data collection methods, and analyses. Before submitting your qualitative research plan, evaluate your qualitative research design using the criteria in sections 19-1 and 19-4 of the text. Consider Methods section from a high-quality published studies in your field as a model. (30 pts.)

Assignment 4. This assignment will involve a mock grant review process. Students will read each student's proposal prior to the session in which the proposal is reviewed. You will be assigned to two review panels. Each panel will lead the review of one proposal. For one of the proposals, you will be the lead reviewer. For the other, you will be the secondary reviewer who takes notes during the class discussion and who prepares the panel's final report. Prior to the review of a student's proposal, the student author will leave the classroom. Proposals will receive ratings of Significance from 1 – 7 (7 being the best), a rating of the Research Plan from 1 – 7 (7 being best), and an overall rating of the proposal from 1 – 5 (1 being best). The lead reviewer will give a short summary of the proposal and an evaluation of the two sections. The other panel member will then add any additional comments to the summary or the evaluations. Then remaining members of the class can add any comments. Finally, all members of the class will anonymously rate the proposal on the three scales defined above; Significance, Research Plan, and Overall. The lead reviewer will collect the ratings. The secondary reviewer, working with the lead reviewer, will prepare a written evaluation of the proposal which will include the average of the class ratings on the three scales and which will summarize the comments of the panel and the other class members. The summary should be no more than three double-spaced pages, and it should include the names of the two panel members at the top of page 1 but nowhere else in the review. The written evaluation will be submitted to the instructor who will remove the names of the review panel members and then forward the review to the student who wrote the proposal. Comments should be helpful to the author of the proposal. Each student will receive up to 15 pts. for each review completed by their panels for a total of 30 pts. Submit each evaluation to Canvas. (30 Pts.)

Topic Schedule

Date

Jan. 17 Jan. 19	Introduction to Research and Research Problems Text: Chapters 1 and 2 Appendices A and B
Jan. 24 Jan. 26	Asynchronous activity – no in person class (see Canvas) The Literature Review and Research Ethics Text: Chapters 3 and 4
Jan. 31 Feb. 2	Measurement Reliability and Validity Text: Chapters 5 and 6
Feb. 7 Feb. 9	Inferential Statistics Text: Sections 7-8, 7-9, and Chapter 8 Assignment 1 Due
Feb. 14* Feb. 16	Experimental Research Text: Chapter 9
Feb. 21 Feb. 23	Experimental Research Designs Text: Chapter 10
Feb. 28 Mar. 2	Large Scale Experiments Howell et al., 2002 Kizilcec et al., 2020 Assignment 2 Due
Mar. 7 Mar. 9	SPRING BREAK – No class
Mar. 14* Mar. 16	Regression Discontinuity Designs and Propensity Score Matching Reichardt & Henry, 2012 Beal & Kupzyk, 2014
Mar. 21 Mar. 23	Ex Post Facto Research and Correlational Research Text: Chapters 11 and 12
Mar. 28 Mar. 30	Reporting Research Results Text: Chapter 14
Apr. 4 Apr. 6	Defining and Designing Qualitative Research Chapters 15 and 16 Assignment 3 Due
Apr. 11 Apr. 13	Data Collection Tools in Qualitative Research Text: Chapter 17

Apr. 18	Rigor & Reporting in Qualitative Research
Apr. 20	Text: Chapters 18
Apr. 25	Mixed Methods Research
Apr. 27	Text: Chapter 21
May. 4	Assignment 4 Due

Textbooks and Materials

Required Textbook

Ary, D., Jacobs, L. C., Sorensen, C. K., & Walker, D. A. (2019). *Introduction to educational research* (10th ed.). Boston, MA: Cengage.

Other Readings

Beal, S.J., Kupzyk, K.A. (2014). An introduction to propensity scores: What, when, and how. *The Journal of Early Adolescence*, 34, 66-92.

Howell, W. G., Wolf, P. J., Campbell, D. E. & Peterson, P. E. (2002). School vouchers and academic performance: Results from three randomized field trials. *Journal of Policy Analysis and Management*, 21, 191 – 217.

Kizilcec, R.F., Reich, J., Yeomans, M., Dann, C., Brunskill, E., Lopez, G., Turkay, S., Williams, J.J., & Tingley, D. (2020). Scaling up behavioral science interventions in online education. *PNAS*, 117, 14900-14905.

Reichardt, C.S., & Henry, G.T. (2012). Regression discontinuity designs. In H. Cooper (Ed.). *APA Handbook of Research Methods in Psychology Vol. 2 Research Designs*. American Psychological Association.

Evaluation of Student Performance

Based on the four assignments, students can receive up to 100 points for the course. The final grade will be based on the percentage of total points earned following the UMN Grading Scale:

93-100%	A	For exceptional work, well above the minimum criteria
90-92%	A-	For outstanding work, well above the minimum criteria
87-89%	B+	For excellent work, significant above the minimum criteria
83-86%	B	For work above the minimum criteria
80-82%	B-	
77-79%	C+	
73-76%	C	For work which meets the course requirements in every respect
70-72%	C-	
67-69%	D+	
63-66%	D	Worthy of credit even though it fails to meet the course requirements
0-62%	F	Failed to meet minimum course requirements

Course and University Policies

Policy for incomplete grades. Instructors may assign the registration symbol I for Incomplete if, at the time the incomplete is requested: (1) the student has successfully completed a substantial portion of the work of the course; and (2) due to extraordinary circumstances (as determined by the instructor), the student was prevented from completing the work of the course on time. The assignment of an I requires a written agreement with the student specifying the time and manner in which the student will complete the course requirements. For more information see [Grading and Transcripts](#).

Uniform Credit Ratio. The University policy statement on class hour-credit ratio is as follows: It is expected that the academic work required of Graduate School and professional school students will exceed three hours per credit per week (updated September, 2011). This includes lectures, laboratories, recitations, discussion groups, field-work, study, and so on. *Therefore, students can expect to spend a minimum of **6 hours per week outside of class** for this 3-credit course for **an average grade**.* Should rates for students' engaged time vary from these guidelines, please discuss with the instructor.

Academic Freedom & Responsibility. Academic freedom is a cornerstone of the University. Within the scope and content of the course, it includes the freedom to discuss relevant matters in the classroom. Along with this freedom comes responsibility. Students are encouraged to develop the capacity for critical judgment and to engage in a sustained and independent search for truth. Students are free to take reasoned exception to the views offered in any course and to reserve judgment about matters of opinion, but they are responsible for learning the content of any course of study for which they are enrolled.

Students with disabilities that affect their ability to participate fully in class or to meet all course requirements are encouraged to bring this to the attention of the instructor so that appropriate accommodations can be arranged. Further information is available from Disabilities Services: <https://diversity.umn.edu/disability/home>

Student Conduct Code. The University seeks an environment that promotes academic achievement and integrity, that is protective of free inquiry, and that serves the educational mission of the University. Similarly, the University seeks a community that is free from violence, threats, and intimidation; that is respectful of the rights, opportunities, and welfare of students, faculty, staff, and guests of the University; and that does not threaten the physical or mental health or safety of members of the University community. As a student at the University you are expected to adhere to the Board of Regents Policy: Student Conduct Code. For more information see the [Student Conduct Code](#).

Note that the conduct code specifically addresses disruptive classroom conduct, which means "engaging in behavior that substantially or repeatedly interrupts either the instructor's ability to teach and/or a student's ability to learn." The classroom extends to any setting where a student is engaged in work toward academic credit or satisfaction of program-based requirements or related activities.

Use of Personal Electronic Devices in the Classroom. Using personal electronic devices in the classroom setting can hinder instruction and learning, not only for the student using the device but also for other students in the class. To this end, the University establishes the right of each instructor to determine if and how personal electronic devices are allowed to be used in the

classroom. For complete information, please reference <https://policy.umn.edu/education/studentresp>.

Scholastic Dishonesty. You are expected to do your own academic work and cite sources as necessary. Failing to do so is scholastic dishonesty. Scholastic dishonesty means plagiarism; cheating on assignments or examinations, including the unauthorized use of online learning support and testing platforms; engaging in unauthorized collaboration on academic work, including the posting of student-generated coursework on online learning support and testing platforms not approved for the specific course in question; taking, acquiring, or using course materials without faculty permission, including the posting of faculty-provided course materials on online learning support and testing platforms; submitting false or incomplete records of academic achievement; acting alone or in cooperation with another to falsify records or to obtain dishonestly grades, honors, awards, or professional endorsement; altering, forging, misrepresenting, or misusing a University academic record; or fabricating or falsifying data, research procedures, or data analysis.). If it is determined that a student has cheated, the student may be given an "F" or an "N" for the course or for a specific assignment, and may face additional sanctions from the University.

Makeup Work for Legitimate Absences. Students will not be penalized for absence during the semester due to unavoidable or legitimate circumstances. Such circumstances include verified illness, subpoenas, jury duty, military service, bereavement, and religious observances. Such circumstances do not include voting in local, state, or national elections. For complete information, please see: <https://policy.umn.edu/education/makeupwork>.

Students as Caregivers. In addition to [formal University policy](#) related to pregnancy, childbirth, childcare etc., I recognize the time, pressure, and stress that stems from a variety of caregiving roles you may hold in addition to your graduate student role. In recognition of that, I am flexible with respect to deadlines for assignments and the absence and makeup work policy in this course. I am also open to discussing other arrangements that would help you balance your course and caregiving responsibilities. Please contact me to arrange a time to discuss these possibilities. If you are a parent, check out the resources provided by the University of Minnesota [Student Parent HELP Center \(SPHC\)](#). Even for those not experiencing a crisis related to Covid and online learning, the SPHC also offers [child care assistance grants and other on-going support](#).

Appropriate Student Use of Class Notes and Course Materials. Taking notes is a means of recording information but more importantly of personally absorbing and integrating the educational experience. However, broadly disseminating class notes beyond the classroom community or accepting compensation for taking and distributing classroom notes undermines instructor interests in their intellectual work product while not substantially furthering instructor and student interests in effective learning. Such actions violate shared norms and standards of the academic community. For additional information, please see: <https://policy.umn.edu/education/studentresp>.

Policy for grading late work. Students are responsible for planning their schedules to avoid excessive conflicts with course requirements and must notify the instructor of unavoidable scheduling conflicts as early as possible. For circumstances where absences are unavoidable, accommodations for makeup work will be made according to University Policy. In this course, excused absences will be handled as follows: Students are responsible for notifying the instructor of their absence and to specify a plan to submit any late work. Work that is submitted late without prior arrangements will be deducted one point per day past the due date. Late work

is acceptable (and not penalized) if you notify the instructor. However, you may receive less feedback on work that is submitted past its due date.

Workload expectation ([Policy: Expected Student Academic Work](#)). While University policy outlines for undergraduate courses that "one credit represents three hours of academic work per week" it is expected that the academic work required of Graduate School and professional school students will exceed three hours per credit per week.

Sexual harassment, sexual assault, stalking and relationship violence. The University prohibits sexual misconduct, and encourages anyone experiencing sexual misconduct to access resources for personal support and reporting. If you want to speak confidentially with someone about an experience of sexual misconduct, please contact your campus resources including the Aurora Center, Boynton Mental Health or Student Counseling Services (<https://eoaa.umn.edu/report-misconduct>). If you want to report sexual misconduct or have questions about the University's policies and procedures related to sexual misconduct, please contact your campus Title IX office or relevant policy contacts.

Instructors are required to share information they learn about possible sexual misconduct with the campus Title IX office that addresses these concerns. This allows a Title IX staff member to reach out to those who have experienced sexual misconduct to provide information about personal support resources and options for investigation. You may talk to instructors about concerns related to sexual misconduct, and they will provide support and keep the information you share private to the extent possible given their University role. See [here](#) for additional information.

Equity, Diversity, Equal Opportunity, and Affirmative Action. The University provides equal access to and opportunity in its programs and facilities, without regard to race, color, creed, religion, national origin, gender, age, marital status, disability, public assistance status, membership or activity in a local commission created for the purpose of dealing with discrimination, veteran status, sexual orientation, gender identity, or gender expression. For more information, please consult [Board of Regents Policy](#).

Disability Accommodations. The University views disability as an important aspect of diversity, and is committed to providing equitable access to learning opportunities for all students. The Disability Resource Center (DRC) is the campus office that collaborates with students who have disabilities to provide and/or arrange reasonable accommodations.

- If you have, or think you have, a disability in any area such as, mental health, attention, learning, chronic health, sensory, or physical, please contact the DRC office on your campus (UM Twin Cities - **626.1333**) to arrange a confidential discussion regarding equitable access and reasonable accommodations.
- Students with short-term disabilities, such as a broken arm, can often work with instructors to minimize classroom barriers. In situations where additional assistance is needed, students should contact the DRC as noted above.
- If you are registered with the DRC and have a disability accommodation letter dated for this semester or this year, please contact your instructor early in the semester to review how the accommodations will be applied in the course.
- If you are registered with the DRC and have questions or concerns about your accommodations please contact your (access consultant/disability specialist).

Additional information:

Twin Cities - <https://diversity.umn.edu/disability/>, drc@umn.edu)

Mental Health and Stress Management. As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety,

alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance and may reduce your ability to participate in daily activities. University services are available to assist you. You can learn more about the broad range of confidential mental health services available on campus via the Student Mental Health Website: <http://www.mentalhealth.umn.edu>.

It is important to acknowledge that Graduate School is a stressful endeavor. If you need mental health support, you are not alone. The University of Minnesota offers excellent additional resources to support mental health including links to [Student Counseling Services](#) and the [Boynton Mental Health Clinic](#). You can find multiple resources on the [Safe Campus-Mental Health website](#). If you or someone you know is experiencing a mental health crisis, call the 24-hour Crisis Line, 612-301-4673.