

**Laboratory in Research Methods: Cognitive Processes**  
**PSY 331.07, Section 01**  
**Spring 2009; MW 9-10:50 a.m.; DEG 8C**

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Office Hours: Mondays 8-9 a.m., Wednesdays 8-9 a.m., and by appointment

Course Website: [www.psychology.ilstu.edu/amhund/resmethod.htm](http://www.psychology.ilstu.edu/amhund/resmethod.htm)

**Required Readings:**

Martin, D. W. (2008). *Doing Psychology Experiments* (7<sup>th</sup> ed.). Belmont, CA: Thomson Wadsworth. (ISBN 978-0-495-11577-9; available at Barnes & Noble College Bookstores and Alamo II)

Readings on electronic course reserve via Milner Library: <https://i-share.carli.illinois.edu/isu/cgi-bin/Pwebrecon.cgi?DB=local&PAGE=rbSearch>

**Recommended Reading:** (Barnes and Noble College Bookstores at Bone Student Center)

American Psychological Association (2001). *Publication Manual of the American Psychological Association* (5<sup>th</sup> ed.). Washington, DC: Author.

**PREREQUISITES**

The prerequisites for this course are PSY 138 (Statistics) and PSY 231 (Research Methods) or consent of the instructor. Only Psychology majors may register for this course.

**COURSE OVERVIEW AND LEARNING OBJECTIVES**

This course is an individualized advanced research course focusing on cognitive processes. You are expected to be proficient with the basics of experimental design and statistical analysis. The main course objectives include learning about and participating in all aspects of research design and interpretation, including literature review, ethical guidelines, specification of testable research ideas, development and execution of a research plan (including collecting data within the limits imposed by the class format), and analysis and presentation of the results in both oral and written formats. For a complete listing of learning objectives, see [www.psychology.ilstu.edu/undergrad/objectives/index.shtml](http://www.psychology.ilstu.edu/undergrad/objectives/index.shtml). Objectives will be assessed through exams, assignments, and activities.

The first half of the course will examine the nuts and bolts of planning a research project. We will discuss chapters from the textbook and background readings related to our topic and complete a midterm exam. In addition, you will design a research project relating to an issue within the domain of cognitive science. Classes for this portion of the course will consist of discussions and exercises related to the assigned readings. It is critical that you complete the assigned readings before class and come prepared to participate in discussion, including bringing copies of the readings with you to class.

The second half of the course will consist of conducting a research project, analyzing the results, and presenting the results in an oral conference style talk and in a written APA-style manuscript. During this portion of the course, classes will be geared toward assisting you with planning and completing the research project. This includes class time set aside for data collection, analysis, and interpretation.

To do well in the course, you must attend class regularly and complete all assigned readings, exercises, and activities. You must also actively participate in class discussions and in all aspects of the research project.

**GRADING PROCEDURES AND DETAILS**

Your course grade will be based on the total number of points you earn during the semester (no rounding or curving): A = 180-200 points, B = 160-179 points, C = 140-159 points, D = 120-139 points, F = 119 points and below. If you withdraw from the course, your course grade will be based on the points earned up to the official date of withdrawal.

Each student will be evaluated based on one midterm exam, several assignments and in-class exercises, class participation, and the planning, execution, and presentation (both oral and written) of a research project. The midterm exam will include material from the textbook, readings, and class and will consist of short answer/essay questions. To do well, you need to be able to understand and apply the principles of research design and interpretation. Detailed instructions for the assignments, exercises, and research project will be given in class.

Grades will be based on the following activities:

Midterm Exam 40 pts. (20%)

#### Assignments

Research Summary 5 pts. (2.5%)

*Brief summary and critique of three research articles*

Computer Training 5 pts. (2.5%)

*Computer-based human research participants training: Protecting Human Research Participants (NIH Office of Extramural Research) <http://phrp.nihtraining.com/users/login.php>*

Annotated Bibliography 10 pts. (5%)

*Type written list of 5 relevant references with brief summaries (a paragraph for each reference)*

Article Roundtable 5 pts. (2.5%)

*Brief oral summary of 1-2 articles most relevant to our proposed project aimed to facilitate sharing of ideas*

IRB Submission 5 pts. (2.5%)

*Application for human participant approval. Forms will be completed during class time, so attendance is necessary to receive credit.*

Peer Reviews (2) 20 pts. (10%)

*Research papers will be randomly distributed for review. This grade reflects the quality of the review, not the quality of the papers being reviewed. Peer reviews will be completed during class time, so attendance is necessary to receive credit.*

#### Research Project

Topic Proposal 20 pts. (10%)

*2-page, type written proposal, which includes question of interest, experimental design, hypotheses and predictions, and reference list*

Oral Presentation 20 pts. (10%)

*15- to 20-minute group presentation of the research project. Each group will present a portion of the project, including an introduction to the question of interest, an explanation of experimental design, a description of results, and a discussion of the implications of the project. Presentations should incorporate overhead or Power Point slides.*

APA-style Manuscript 40 pts. (20%)

*Approximately 10-page type written write-up of the research project using APA style. 15 points of the overall grade will reflect the quality of previous drafts and improvements based on reviewers' comments.*

Class Participation 30 pts. (15%)

*Based on class attendance and active participation in discussion; completion of in-class exercises; active participation in all aspects of the research project (as judged by self, classmates, and instructor); summary and reflection on learning experiences*

You will be given the opportunity to earn a maximum of 5 points of extra credit by two methods:

(a) You may volunteer to participate in psychological research. You may earn 2 extra credit points for each half hour of participation if you choose to volunteer (e.g., 1 1/4 hours = 5 points). Participation as a research participant is entirely voluntary. To sign up for a study, go to the basement of DeGarmo Hall and sign up on the sheets posted on the bulletin boards or sign up online. For online sign up and additional details, see [www.psychology.ilstu.edu/research/students.shtml](http://www.psychology.ilstu.edu/research/students.shtml). Please respect the sign-up process by keeping appointments and only signing up for each study once.

(b) You may read a journal article and write a short summary. The article may be on a cognitive psychology topic of your choice, but must come from a scientific journal in psychology and *must be approved by the instructor ahead of time*. Articles read for class activities and projects are not eligible for extra credit. Summaries should be approximately 2 pages in length and typed with double spacing. The article must accompany your summary, and it must have my initials of approval to receive credit. Summaries may earn a maximum of 5 points extra credit.

All blue cards and summaries must be turned in **by class time on the due date** to be eligible for extra credit. *Late extra credit work will not be accepted*. Please turn in ALL of your extra credit work at one time. Make sure that your name is included on each piece, and that all pieces are stapled together in one bundle. Extra credit points will be added to your point total in the determination of your course grade. Your grade will not be affected if you do not choose to participate in one of the extra credit options. Extra credit assignments will be held to academic integrity standards.

### **POLICY FOR MISSED EXAMS, LATE PAPERS, ETC.**

Makeup exams will be allowed only for documented university-mandated and/or officially verified reasons (e.g., serious illness, family emergency, mandatory religious obligations). If the absence can be anticipated, you must notify me in writing and provide documentation of your absence at least one week prior to the exam date to arrange taking the exam before its scheduled day. If you are ill or have an emergency on the day of the exam, you must contact me via voice mail or email before the time of the exam. In such cases, arrangements for the make up exam must be finalized within two workdays of the exam date, and the make up exam must be completed within a span of time less than or equal to the span during which you were absent. Failure to follow these procedures will result in a score of 0 for the exam. Make up exams may differ in format from the original exams. The final paper must be turned in at the assigned time (i.e., the final exam period) unless arrangements consistent with university policy have been made in advance ([www.registrar.ilstu.edu/crd/finalexams.shtml](http://www.registrar.ilstu.edu/crd/finalexams.shtml)).

Late paper drafts and assignments will be graded down in accordance with the degree of lateness unless there is a university-mandated and officially documented excuse. You will lose 10% of the possible points for each day the assignment is late. Late paper drafts will not be eligible for peer review.

### **UNIVERSITY POLICIES**

#### *Attendance and Participation*

Learning is facilitated by active participation. In this class, attendance is critical for the completion of the exercises and research project, as well as for meeting the learning objectives. Attendance and class participation constitute 15% of your course grade. If your absence is unavoidable, you are responsible for contacting your teammates (as appropriate) and me in advance and obtaining all notes and announcements from a classmate.

#### *Academic Integrity*

Unless otherwise specified in the syllabus, assignments in this course must be completed by you alone and must represent your best effort. Plagiarism and cheating in any form are serious offenses that will not be tolerated and will result in disciplinary action, including the possibility of failing this course. Please consult the *Code of Student Conduct* for details regarding University academic integrity policies: [www.deanofstudents.ilstu.edu/about\\_us/crr.shtml](http://www.deanofstudents.ilstu.edu/about_us/crr.shtml).

#### *Civility and Respect*

We will respect one another and our learning environment. You are expected to treat classmates and me with civility and respect. For example, interruptions during class such as using your cell phone, reading the newspaper, or talking to your neighbor about issues unrelated to class are disrespectful actions that will not be tolerated. Please consult the *Code of Student Conduct* and the Department of Psychology civility guidelines ([www.psychology.ilstu.edu/diversity/civility.shtml](http://www.psychology.ilstu.edu/diversity/civility.shtml)) for complete details.

#### *Students with Disabilities*

Any student in need of special accommodation should contact 438-5853 (voice), 438-8620 (TDD).

## TENTATIVE SCHEDULE OF TOPICS

<u>Week</u>	<u>Date</u>	<u>Topic</u>	<u>Reading</u>
Week 1	Mon., Jan. 12	Introduction	none
	<b>Wed., Jan. 14</b>	Psychology as a science <b>Getting to Know You assignment due</b>	Ch. 1
Week 2	Mon., Jan. 19	<b>No Class—Martin Luther King, Jr. Day</b>	
	Wed., Jan. 21	Doing experiments Hund, A. M., Haney, K. H., & Seanor, B. D. (2008). The role of recipient perspective in giving and following wayfinding directions. <i>Applied Cognitive Psychology</i> , 22, 896-916. Hund, A. M., & Nazarczuk, S. N. (in press). The effects of sense of direction and training experience on wayfinding efficiency. <i>Journal of Environmental Psychology</i> .	Ch. 2 & two articles
Week 3	Mon., Jan. 26	Generating experiment ideas Montello, D.R., Hegarty, M., Richardson, A. E., & Waller, D. (2004). Spatial memory of real environments, virtual environments, and maps. In G. L. Allen (Ed.), <i>Human spatial memory: Remembering where</i> (pp. 251-285). Mahwah, NJ: Erlbaum. Shelton, A. L. (2004). Putting spatial memories into perspective: Brain and behavioral evidence for representational differences. In G. L. Allen (Ed.), <i>Human spatial memory: Remembering where</i> (pp. 309-327). Mahwah, NJ: Erlbaum.	Ch. 3 & two chapters
	<b>Wed., Jan. 28</b>	Discussion: research articles Exploring project topics <b>Research Summary due</b> Taylor, H., & Tversky, B. (1996). Perspective in spatial descriptions. <i>Journal of Memory and Language</i> , 35, 371-391. Richardson, A. E., Montello, D. R., & Hegarty, M. D. (1999). Spatial knowledge acquisition from maps and from navigation in real and virtual environments. <i>Memory &amp; Cognition</i> , 27, 741-750. Devlin, A. S., & Bernstein, J. (1997). Interactive way-finding: Map style and effectiveness. <i>Journal of Environmental Psychology</i> , 17, 99-110.	Taylor & Tversky (1996) Richardson et al. (1999) Devlin & Bernstein (1997)
Week 4	<b>Mon., Feb. 2</b>	Ethical considerations: Human participants <b>Human Participant Training Certificate due</b>	Ch. 4 and 5
	<b>Wed., Feb. 4</b>	Discuss project topic ideas <b>Proposed Project Topic due</b>	
Week 5	Mon., Feb. 9	Literature reviews and Experimental design	Ch. 6 and 7
	Wed., Feb. 11	Experimental design	Ch. 8 and 9
Week 6	<b>Mon., Feb. 16</b>	Experimental design <b>Annotated Bibliography due</b>	Ch. 9 and 10
	<b>Wed., Feb. 18</b>	Experiment planning <b>Article Roundtable</b>	Ch. 11

Week 7	<b>Mon., Feb. 23</b>	Experiment planning <b>IRB Forms completed in class</b>	Ch. 11
	Wed., Feb. 25	Analyzing data and Interpreting results	App. A & Ch. 12
Week 8	Mon., Mar. 2 <b>Wed., Mar. 4</b>	Project discussion and Review <b>Midterm Exam, in class</b>	none
<b>Spring Break</b>			
Week 9	Mon., Mar. 16  <b>Wed., Mar. 18</b>	Writing in APA style Mitchell, M. L., Jolley, J. M., & O'Shea, R. P. (2007). Writing research reports and proposals. In Writing for Psychology, 2nd ed. (pp. 53-100). Belmont, CA: Thomson Wadsworth. Preparing research presentations Project discussion and training <b>Extra Credit due by class time</b>	Ch. 13 & Mitchell chap.  Ch. 13
Week 10	Mon., Mar. 23 <b>Wed., Mar. 25</b>	Data collection begins Data collection <b>Draft of Introduction and Method due</b>	none none
Week 11	<b>Mon., Mar. 30</b>  Wed., Apr. 1	Data collection <b>Peer Review of Introduction and Method Summary/Reflection due</b> Data collection	none none
Week 12	<b>Mon., Apr. 6</b>  Wed., Apr. 8	Data collection <b>Summary/Reflection due</b> Data collection	none none
Week 13	<b>Mon., Apr. 13</b>  Wed., Apr. 15	Data analysis and interpretation <b>Summary/Reflection due</b> Data analysis and interpretation	App. A & Ch. 12 none
Week 14	Mon., Apr. 20  <b>Wed., Apr. 22</b>	APA writing workshop Group presentation preparation <b>Draft of full paper due</b> <b>Peer Review of full paper</b> Group presentation preparation	Ch. 13 & Mitchell chap. none
Week 15	<b>Mon., Apr. 27</b> <b>Wed., Apr. 29</b>	<b>Group Oral Presentations</b> <b>Group Oral Presentations</b>	none none
Week 16	<b>Mon., May 4, 7:50 am</b>	Concluding Thoughts <b>Final Paper Due</b>	

**Congratulations on a semester well done!**  
**Enjoy the summer and the rest of your life journey.**