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**Required Text**

Shaughnessy, J. J., Zechmeister, E. B., & Zechmeister, J. S. (2009). *Research methods in psychology (8<sup>th</sup> ed.)*. Burr Ridge, IL: McGraw-Hill.

**Suggested text**

American Psychological Association (2009). *Publication manual of the American Psychological Association (6<sup>th</sup> ed.)*. Washington, DC: Author.

**Course Description:** Emphasizes the scientific basis of psychology. Explores the research methods of modern psychology. Covers the use of statistics in the design of behavioral experiments. Example experiments are conducted to gain comprehension. Students will gain skills necessary for the management of simple research and the interpretation of research reports. Three hours lecture, two hours lab. Prerequisite: Psyc 245 (Statistics).

**Course Objectives:** On completion of this course students should know how to use research methods in the evaluation and study of psychological issues. The goal is to provide increased knowledge regarding understanding research and hands-on training in conducting that research.

**Knowledge**

- Generating hypotheses
- Types of experiments
- Ethics of experimentation
- Conducting experiments
- Analyzing data
- Interpreting results
- Writing results
- Presenting results
- Writing papers in psychology

**Personal Development**

- Investigation of a topic in psychology that interests you.
- Develop critical thinking skills in the evaluation of scientific discoveries.
- Working within a group on communication skills.
- Work with organizational skills in large projects.
- Develop presentation skills to convey your ideas to others.

Thoughts:

- As your instructor, it is *my* responsibility to present learning opportunities through the course syllabus, lectures, labs, class discussions, assignments, and in-class and out-of-class exercises.
  - It is **your** responsibility to do the learning by completing the readings, by attending class, and by participating in class discussions and exercises.
  - I cannot do the learning for you – all I can do is to try to guide you toward that information.
- As your instructor, it is my responsibility to respect your abilities to learn.
  - All of you are capable of reading, and of taking in information from the textbook. Therefore, merely rehashing the text would be an insult to your abilities.
  - My job, therefore, is to explore the topics that the text mentions in other ways. To extend what you learned from the book to other related ideas.
  - *To do this, you must read the text BEFORE class, so that you can understand the relationships between what we are discussing and what you have read.*
- The goal of a college course is **not** to teach you precisely the information that will be on the exam. It is to teach you to think. It is to teach you the concepts behind the facts. It is to teach you a broad range of information. However, to test you on all of that would result in a single test that takes hours and hours to complete. Therefore, you are tested on a subset of what you are taught.
  - That does not mean that only some of what you were taught was important.
  - That does not mean that we are wasting class time on unimportant information.
  - That does mean that you should expect to study ALL of the information from class, from the slides, and from the text for the exams.
- There is a reason behind quizzes and exams. The reason is not to give you a grade. It is to give you a means of measuring how well you are achieving the primary goal of any course – *mastery of the course content and skills*.
  - If you find you are not mastering the material and skills, you are encouraged to reflect on how you study and prepare for each class. I welcome a dialogue on what you discover and may be able to assist you in finding resources on campus that will improve your performance.
  - Please keep in mind that the quizzes should help you judge whether or not you understand the material from the book prior to our class discussions. They are **not** designed as examples of the questions to expect on the exam.

## COURSE REQUIREMENTS

**Lecture Class Attendance:** This is a class where lectures and labs build off one another, so regular attendance is crucial for learning the material and successfully completing this course. There is no official attendance policy for the class. However, failure to attend class will rather directly affect your grade in the class (see below).

**Laboratory Class Attendance:** Attendance at **ALL** laboratory sessions is mandatory. Lab time is often focused on your group projects – failing to attend punishes not only yourself, but also all members of your group. When you miss a lab, you hurt yourself by missing the information, and hurt other class members by failing to be available to participate in discussions. As such, failure to attend **one** laboratory session will be your “free pass”. The **second** unexcused absence will result in a reduction of the course grade of 5% from your final grade. Failure to attend **three** laboratory sessions will result in a reduction of the course grade by 10%

off your final grade. Failure to attend **four** laboratory sessions will result in an automatic 'F' in the course. Arriving more than 15 minutes late to lab constitutes missing the lab (barring an excusable reason for the tardiness). Missing a lab will require a written excuse from the Dean of Students or notification from the athletic department. \*\*If you believe that your absence should be excused, please speak with me about it. While I rarely accept "I wasn't feeling great, so...", it is possible that by speaking to me you will avoid losing points. The worst I can say is "sorry, but no." Sending an e-mail to let me know that you will be missing lab does not typically constitute speaking with me to ask for an excused absence – think face-to-face conversation. No, Stephanie cannot determine whether or not the absence is excused, only I can.

**Daily quizzes:** Each class will begin with a short multiple-choice quiz. Each quiz will cover material from the textbook reading for that day. These questions are taken directly from the text – we will not have covered the material yet, therefore, I do not expect you to know any nuances I will be covering (that is why you also have exams). However, I *do* expect you to come to class prepared to discuss the reading and to move on to other related topics each day. Your preparation for doing so will be monitored by the quizzes. **Daily quizzes cannot be made up – regardless of reason. This means that even if you are excused from class that day, you cannot make up a quiz.** If you are not in class at the time of the quiz (either you arrive late to class or miss that day), then you will receive a 0 for that quiz. I will drop your **two** lowest quiz scores when calculating your final grade. These quizzes are worth 10% of your grade.

**Laboratory assignments:** Each week in lab we will have either a topic for discussion or a project on which you will need to work. Some weeks we will also have a short lecture at the beginning of the lab, where I will review formatting the relevant section of your final paper (for example, if lab is focused on method sections, we will spend the beginning of the class discussing formatting method sections. Then we will move on to our discussion/task for method sections). We will be reviewing the "practical" side of the course – designing studies and writing research reports. The material covered in lab will parallel what we learn in the regular class; however, the exact material will not be discussed in the regular lectures, but will be included on exams and used to grade your papers. While the lab assignments do not directly influence your grade, failure to participate in the group discussions is highly correlated with failure to succeed in the class in general.

**Semester Exams:** There will be two exams in this course. Both exams will cover lecture, reading and laboratory material. Question format will be multiple choice, true false, and short answer. **Make-up exams are not permitted without a valid excuse (as determined by the Dean of Students, athletic department, or me).** Please see me *before* the exam, if possible, to discuss options if you will miss the date of the exam. The first exam will be taken during class time and will be worth 15% of your final grade. The cumulative final will be taken during finals week (Friday, April 29<sup>th</sup>, from 2:45 – 4:45 pm) and will be worth 20% of your final grade.

**Project:** You will be assigned to groups of 3 – 4 students. This group will be responsible for **designing, conducting, analyzing, writing-up and presenting a research study.** The group experiment should be an original design and not just a re-running of a previous experiment. Your group will need to select a research question and design a complete project within the first few weeks of the semester. You will have guidance

from me and you may consult other professors. Each student will need to build a “Research Project Portfolio” for this class (see last page of syllabus). The overall project is worth 40% of the course grade.

**\*\*NOTE: Each group is responsible for keeping record of the subjects and any potential extra credit points they are earning. The group must provide each participant with an extra credit receipt slip and also keep a list that will be shared with the psychology faculty members of who received extra credit for your study for which course.** In lab, we will discuss the proper way for compiling a list of all students who have earned extra credit for your project, and how to notify myself & the faculty of those lists. Please do not do so until after speaking with me.

**Conduct** – Each experiment will be run during the semester by following proper procedure for the protection of participants. Your participation in the running of the experiment will be graded by your peers! Students whose peers note that they have not contributed fairly to a project may receive deductions in their grades on group assignments.

**Analysis** – Full statistical analysis of the research data will be run on SPSS. We will spend lab time working on your analyses; but, in the end, the group is responsible for selecting the proper statistical procedure. All statistical analyses relevant to your paper should be included in the Research Project Portfolio that you turn in for the final draft of the paper. Note: all members of the group do **not** need to use the same set of statistical analyses for their papers. Therefore, all members of the group also do **not** need to turn in the same SPSS print-offs.

**IRB proposals/Design** – An IRB proposal/research design will be put together early in the semester and the proposal will be handed in and critiqued first by me and then by the Subcommittee for Protection of Research Subjects. Each group must have a minimum of 6 references incorporated into the IRB proposal when it is turned in to the IRB and to the professor. For the IRB proposal (and **\*only\*** for the IRB proposal), I understand that it will be difficult to get every article in time. Therefore, **with prior permission from me**, it is possible for you to use just an abstract for the IRB proposal if needed while you wait for ILL to provide you with the complete article. If you are encountering a difficulty with this, speak with me. I will need to pre-approve **each abstract** that your group intends to use for the IRB proposal. Note: by the time of the first draft of your paper, you will need to either a) obtain the full article or b) replace the abstract with something where you can have the full article.

IRB Proposals are due by the beginning of class on **Tuesday, February 1<sup>st</sup>**. I will return that copy with feedback for corrections by **Thursday, February 3<sup>rd</sup>**, and each group must make those corrections and turn in a final draft for submission to the IRB by the beginning of class on **Tuesday, February 8<sup>th</sup>**. When you turn in the revised copy, you must also turn in the original draft with my comments on it to allow me to quickly check if the necessary changes have been made (and if they have been done well). I will not sign off on submitting it to the IRB until I am convinced that the changes have been well-done; and you cannot submit to the IRB without a faculty member’s signature on the cover letter. Each **group** must turn in a hard copy to me that has your signatures on the cover letter. Note that the IRB proposal does not contribute to a specific portion of your grade. However, the course requires that your group complete a research project. In order to be able to do that, you must complete the IRB proposal, and (if necessary) modify that proposal until you

receive IRB approval for your project. Therefore, failure to complete this IRB proposal will effectively result in failure to pass the class.

**Write-up** – One of the primary goals of the course is to teach you how to write a research paper in APA format. Thus, the grade for your paper will be determined both by the content of the paper and by how well it conforms to APA guidelines. Once we have discussed proper formatting for a section in class or lab, you will be expected to use that formatting from then until the final draft of the paper.

**First**, each student will need to turn in an initial draft of the **Introduction** section of your paper. There should be a **minimum** of 5 pages of text – i.e., don't count a title page or references pages if you opt to include them; if your first page starts half-way down due to excessive header information (name, date, class, etc etc etc), then it only counts as ½ a page. You should include at least 8 **academic** references; further, at least 5 of those references must be primary academic references. As will be discussed in lab, the introduction needs to build your argument for why you are intending to do this research project – why is it important, how is it similar to what has been done before, how is it different from what has been done before, etc. You will be graded on how well you achieve this task. You will also be graded on basic writing skills (does every sentence have a subject and a verb? Did you properly use past tense throughout? etc.). Further, you will be graded on APA formatting and correct inclusion of material in each section. Finally, you must include hard copies of every cited reference in this paper (see below). This draft will be due on **Tuesday, February 22<sup>nd</sup>**, and will be worth 8% of your final grade. This will be returned with feedback in time for you to write the next draft of your paper.

**Second**, each student will continue their paper, submitting a **revised** Introduction section along with the **Method and Results** sections. By this point in the semester, you must have a **minimum** of 8 pages of text (see above) and at least 11 academic references (at least 6 must be primary academic references). The **Introduction** must incorporate my feedback on the initial draft and should show improvement in your argument. Please note – my standards are raised with each successive draft. Therefore, an Intro that earned a high A on the first draft, if not improved, may only receive a B+ on the second draft. The **Method** section should be as complete as possible – if you are still collecting data, then you may need to use XXX or a \_\_\_\_\_ to indicate where final numbers will be filled in. Finally, most groups will not yet have completed data collection, and therefore will not have even begun data entry or data analysis. I understand this. However, you also were required by the IRB to include a tentative statistical plan with your proposal. This is your time to update and/or clarify that plan, if needed. Thus, a **Results** section must also be included in this draft. As before, writing skills and APA formatting will influence your grade as well as the actual content. The second draft is due at the beginning of class on **Thursday, March 24<sup>th</sup>**, and is worth 12% of your final grade. When you turn in this draft, you must also include the copy of the first draft with my comments (failure to do so means an automatic 0 for this draft) and hard copies of every reference cited (see below). This will be returned with feedback in time for you to write the next draft of your paper.

**Finally**, each **final** paper write-up consists of: title page, abstract, introduction, method, results, discussion, tables/figures/appendix (if necessary) and a **minimum** of **14 academic** references. Please see the research project portfolio requirements for a complete listing of supplementary materials required with this draft. As this is your final draft, it will be graded based on all topics that we have covered throughout the semester. My standards when grading this draft will be notably more stringent than on the earlier drafts. Further, for the final draft of the paper, you must turn in the copy of the earlier drafts that have my comments on them. Failure to do so will result in an automatic 50 point reduction in your grade for the final draft. Each student will complete a final paper that is due by the beginning of class on **Tuesday, April 26<sup>th</sup>**. This will be worth 20% of your final grade.

**\*\*Note:** The majority of your references for the paper must be primary research articles (i.e., initial publications of data-based research). That means, you need a minimum of 8 primary references (out of your 14 total), but if you used more than 14 references, you may need more than 8 primary references. Also, for all drafts of the paper, you must provide me with hard copies of every reference cited in that version when you turn in that copy of the paper. Failure to do so will result in a 0 for that draft of the paper. What is a hard copy? It is something I can physically touch. So, either it is pieces of paper on which the paper is reproduced in ink (either you printed it off or you made a photocopy or ...) or it is a CD-ROM (or flash drive) on which you have copied the pdf files of the articles or it is a combination of the two. Sending me an e-mail with the articles attached or with links to websites where I can find the articles counts as failing to provide hard copies (i.e., you get a zero on the draft). **Each individual must provide me with their own set of hard copies, even if other members of the group used the same article(s) – the only exception is for the IRB proposal, when one set of articles is required per group.** Hard copies are due at the beginning of class – so when you turn in your paper, you must also turn in the hard copies at the same time. Hard copies may be turned in late, but providing them after 1:16 pm on the date that a paper is due will result in a deduction on your grade for that draft.

**\*\* For all drafts, you must upload a file copy to [TurnItIn.com](http://TurnItIn.com) by 5 pm on the day that it is due.** Failure to upload the paper to Turnitin.com will result in your grade on that paper automatically being a 0, as I must therefore assume that it was not solely your own work (i.e., it included plagiarized material). Uploading it to turnitin.com late leads to me grading the paper, but with a penalty for uploading it late (the amount of penalty depends on just how late the paper is). To be clear – while you must provide me with a hard copy of your paper and your references at the **beginning** of class, you must also upload the paper to TurnItIn.com. I do not begin grading a paper until it is available on TurnItIn.com.

**\*\*The class ID # for [TurnItIn.com](http://TurnItIn.com) is 3743836 and the password is research.**

**Given the short amount of time between drafts of the paper, and the need for me to have time to provide thoughtful feedback and you to have time to contemplate the feedback and respond to it, no paper will be accepted more than 7 days after the due date. The only exception would be if extreme extenuating circumstances led the Dean of Students to specifically request that all of your professors provide you with**

**extensions on your work. If you do not have documentation to convince the Dean of Students, don't ask me for an extension past 7 days.**

**Poster and Presentation:** On **Wednesday, April 20<sup>th</sup>** (during lab), we will present our projects to the class and other members of the psychology department and campus community at our poster and presentation session. Pertinent title, abstract, introduction, method, results and discussion will be presented. The goal of this session is two-fold. In the world of scientific research, there are three dominant means of disseminating your results: 1) publication of a research report – to learn how to do this, we require you to complete the paper for this course; 2) presentation of a poster at a conference – to learn how to do this, we require that your group creates a physical poster that you can display and discuss during the poster/presentation session on the 21<sup>st</sup>; and 3) presentation of a talk or paper at a conference – to learn how to do this, we require that your group also create a separate presentation for the beginning of the poster/presentation session.

One poster will be completed for each **group** and will be worth 5% of your final grade. Each group will also create a short PowerPoint presentation of the study – much of this can overlap with the poster, but it is also acceptable for the overlap to be minimal if there are many different aspects of the study (so you would present some aspects during the presentation and others in the poster). All members of the group will receive the same grade on the poster. However, during the presentation, it is possible for various members of the group to receive widely ranging scores. You will be graded primarily on how well you can convey your information – that is, on your public speaking ability. Please keep in mind that failing to speak (and letting other members of your group give the presentation without much input from you) and speaking too much (i.e., domineering the presentation so that others have no chance to speak) both are seen as poor ability to convey information. Therefore, I highly recommend practicing your entire presentation (i.e., with all group members practicing together) before the presentation session. The PowerPoint presentation is also worth 5% of your final grade.

**Poster Critique:** During the poster session each student will be responsible for reviewing each of the other experiments by reading the poster and questioning the researchers' knowledge of their topic and understanding of their results. You will be given a set of questions to ponder. A critique of the poster/presentation/authors' responses along with **your objective thoughts** on their research question, methodology, results and conclusions is due on **Thursday, April 21<sup>st</sup>**, during class. We will spend the class period discussing thoughts and ideas for each other's posters on that day. The critique can be handwritten or typed, but must be available to be turned in at the end of class. The poster critique, along with your contribution to the class discussion of everyone's posters, will be worth 5% of your final grade.

**Grade Calculation:**

Quizzes (10%) + Exam #1 (15%) + Final Exam (20%) + First draft (8%) + Second draft (12%)  
+ Final draft (20%) + Poster (5%) + Presentation (5%) + Poster Critique (5%) = **Final grade**

**Course Grades:**

93–100	A	90–92.9	A-	87–89.9	B+	83 – 86	B	80–82.9	B-
77–79.9	C+	73–76.9	C	70–72.9	C-	67–69.9	D+	60–66.9	D

**WITHDRAWAL POLICIES** Per UE policies: Discontinuance of attendance does not automatically constitute a withdrawal. Students failing to file a proper drop/add form by the appropriate deadline must complete classes for which they are registered or received a grade of "F". Withdrawal from a course after the deadline requires petition to and approval of the Admissions and Standards Committee and/or the Vice President of Academic Affairs.

**Last day to drop without a grade for Spring 2011 is Friday, January 14<sup>th</sup>.**

**Last day to drop and receive a "W" for Spring 2011 is Thursday, April 1<sup>st</sup>.**

**INCOMPLETE GRADE POLICY** All coursework is to be completed within the semester it is attempted. The grade report of "I" will be given only when justified by personal crisis or legitimate sickness; otherwise, the missing scores will be entered as zeroes. As outlined in the catalog, the following circumstances must exist as well for the receipt of an "I": (1) the student's other work in the course would earn a passing grade, and (2) the outstanding task can be completed without further class attendance. A request for an "I" must be presented in writing by either you or the Dean of Students. If granted, an "Incomplete Grade Contract" will then be drawn up and signed by both the instructor and the student. The catalog continues:

Outstanding course work normally should be completed within six weeks of the class ending, but the instructor may allow up to one year from the end of the term for which the "I" grade is granted. It is the student's responsibility to have this deficiency removed within the contractually agreed upon time or within one year, whichever is less. If no grade change has been submitted by the instructor after the maximum one-year grace period, the registrar is authorized to change all grades of "I" to "F".

**ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES** It is the policy of the University of Evansville to make reasonable accommodations for students with properly documented disabilities. Written notification to faculty from the Office of Counseling and Health Education is required for any academic accommodations. If you are eligible to receive and accommodation and would like to request it for this course, please discuss it with me and allow two weeks notice. Otherwise, it is not guaranteed that the accommodation can be received on a timely basis. If you have questions about services for students with disabilities or procedures for requesting services, you may contact the Office of Counseling and Health Education at 488-2663.

#### **University of Evansville ACADEMIC HONOR CODE**

**"I understand that any work which I submit for course credit will imply that I have adhered to the Academic Honor Code: I will neither give nor receive unauthorized aid nor will I tolerate an environment which condones the use of unauthorized aid."**

Failure to adhere to this code will result in receiving an "F" for the course.



**LECTURE Class schedule:** This is a tentative calendar -- I'll let you know if it changes!

<b>Date</b>	<b>Topic</b>	<b>Chapter</b>
1/11	Overview of the course	
1/13	Overview of scientific psychology	Ch 1
1/18	Explanation in scientific psychology: Making sense & explaining	Ch 2 (29-38)
1/20	Explanation in scientific psychology: Theories & science	Ch 2 (39-53)
1/25	Exploring the literature of psychology	Ch 3
1/27	Observations in psychological research: Naturalistic observations	Ch 4 (88-95)
2/1	Observations in psychological research: Case studies & surveys	Ch 4 (95-106)
2/3	Relational research: The basics	Ch 5 (110-121)
2/8	Relational research: More advanced notions	Ch 5 (121-128)
2/10	Basics of experimentation: Variables	Ch 6 (131-149)
2/15	Basics of experimentation: Error & external validity	Ch 6 (149-159)
2/17	Validity and reliability in psychological research: Validity	Ch 7 (163-168)
2/22	Validity and reliability in psychological research: Reliability	Ch 7 (169-174)
2/24	Validity and reliability in psychological research: Other issues	Ch 7 (174-183)
3/1	review for midterm/catch-up day	
<b>3/3</b>	<b>Midterm Exam</b>	
<b>3/8 &amp; 3/10 SPRING BREAK</b>		
3/15	Experimental design: Internal validity	Ch 8 (188-192)
3/17	Experimental design: Between, within, mixed, & choices	Ch 8 (193-207)
3/22	Complex design: Factorials	Ch 9 (211-221)
3/24	Complex designs: Within & mixed	Ch 9 (222-230)
3/29	Small- <i>n</i> experimentation	Ch 10
3/31	Quasi-experimentation: Initial types	Ch 11 (253-266)
4/5	Quasi-experimentation: Matching & developmental designs	Ch 11 (266-274)
4/7	Conducting ethical research: Human research	Ch 12 (278-287)
4/12	Conducting ethical research: Animal research	Ch 12 (288-295)
4/14	Interpreting the results of research: Biases & errors	Ch 13 (300-309)
4/19	Interpreting the results of research: Finding patterns	Ch 13 (309-320)
4/21	Poster critiques	
4/26	Class wrap-up and review	
	<b>**Final Research Project Portfolios due today by 2:45 pm</b>	
	<b>*late papers will have 5% deducted for each day that they are late</b>	
	<b>(4/26 from 1:16 pm until midnight = 5% off; 4/27 = 10% off; ...)</b>	
4/27	Reading Study Day	
<b>4/29</b>	<b>FINAL EXAM (2:45 pm in HH 202)</b>	

LAB schedule

<u>Date</u>	<u>Topic</u>	<u>Reading</u>
1/12	<b>How do I pick a research topic for my group project?</b> Database searching; finding the right references	
1/19	<b>Formatting IRB proposals</b> Group project work	Posted to blackboard
1/26	<b>Group project work</b>	
2/2	<b>Overview of papers</b> Global formatting and writing style per APA Formatting references!	Chapter 14 (pp 324-354)
2/9	<b>Introduction sections</b> Formatting of Introduction sections Analysis of published introduction sections	
2/16	<b>Method sections</b> Formatting Method sections Analysis of published method sections	
2/23	<b>Results and Discussion sections</b> Formatting of Results and Discussion sections Analysis of published results and discussion sections	
3/2	<b>Formatting posters and presentations</b>	Chapter 14 (pp 355-358)
3/9	<b>SPRING BREAK!! ☺</b>	
3/16	<b>Statistics</b> Review of the basics of descriptive and inferential statistics	Appendix A & B
3/23	<b>Formatting Tables and Figures</b>	
3/30	<b>The miscellaneous wrap-up details</b> (compiling extra credit reports for faculty; contacting IRB; etc) Creating a database	
4/6	<b>Adding to database and analysis of data</b>	
4/13	<b>Adding to database and analysis of data</b>	
4/20	<b>Poster Session</b>	

## Research Project Portfolio

The following should be included in your research project portfolio.

### Paper (in APA formatting)

### due as notated

Title page	with final draft
Abstract	with final draft
Introduction	with <u>all</u> drafts
Methods	with <u>2<sup>nd</sup> and final</u> drafts
Results	with <u>2<sup>nd</sup> and final</u> drafts
Discussion	with final draft
References	with final draft
Footnotes/Author's notes	if desired on final draft
Tables	if needed on final draft
Figure captions	if needed on final draft
Figures	if needed on final draft

### Previous drafts of paper

Your previous drafts, with my comments written on it, must be returned with the final draft of your paper (note: the IRB proposal does not count as a previous draft, so you do not need a copy of it in your portfolio)

### Log from data collection

Data logs and commentary for each session of data collection

\* Each *person* must have their own data log – handwritten is fine. Logs should ***not!*** be identical for all members of the group

Notes where protocol was changed and why

Notes on any interruptions in data collection

\*\* Each group must also turn in their entire set of data sheets, or each group member will receive an Incomplete until I receive the data

### Data analysis

ALL relevant statistical analyses must be printed and provided

### Supporting articles

One copy of all referenced articles must be included in the experiment portfolio. It is fine if the hard copy has writing on it (notes, etc).

**Each time that you turn in a draft of the paper, you must turn in copies of the references used for that draft (I will give them back each time).**

If a book, you may copy only the relevant portions of the book (a chapter, etc), but you must also copy the front page of the book, for identification.

Please note that you must include a minimum of 14 (fourteen) academic references. If you have included any additional references in the citations in the paper, you must provide copies/print-outs of them as well.