

# Psychology 205: Research Methods in Psychology

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## Outline

### Goals

### The psychology major at NU

### Evaluating scientific data

- Psychological data

- Non-psychological data

### Goals and Requirements

- Texts and readings

- Goals and requirements

### Overview

- Reasoning and methods of data collection

- Statistical procedures and methods of analysis

## Goals

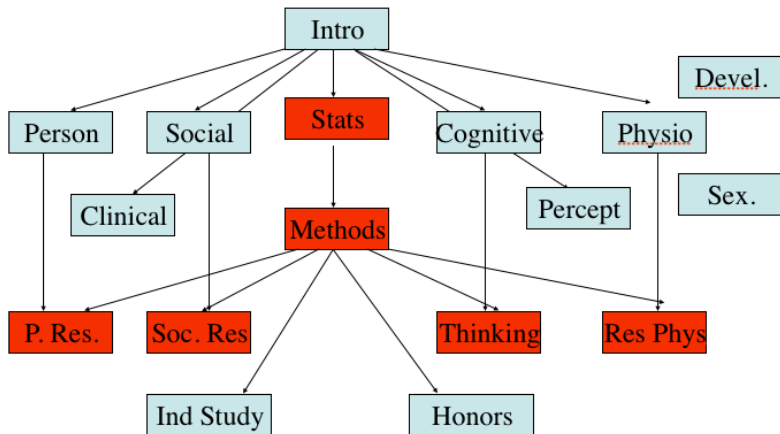
1. To make you a better consumer of scientific information in general.
2. To introduce you to fundamental skills in psychological research in particular.
3. To facilitate your understanding of substantive courses in psychology.
4. To improve your ability to write and read scientific papers.
5. To help you appreciate the fun and mystery that is science.

## The psychology major at NU

1. Introductory Psychology
2. Methodology Sequence
  - 201: Statistics
  - 205: Research Methods
  - 3xx: Advanced research in a substantive area
3. Substantive courses
  - Personality/Social/Clinical ("Column A")
  - Cognitive/Physiological ("Column B")
  - Other broad courses ("Column C")
4. Advanced research courses ("Row 2")
5. Independent Study (399) and Honors (398)

## The psychology major at NU

# The Psychology Major at NU



## Evaluating experimental and non-experimental data in psychology

1. Effectiveness of psychotherapy
2. Effectiveness of psycho-pharmacological interventions
3. Attitude change due to expert influence
4. How and why do people fall in love
5. Brain structures involved in memory
6. Effect of personality on human performance
7. Temperament, interests, and ability predictors of college major
8. Effect of mood on creativity
9. Optimal design of aircraft control systems
10. Attitude change towards sustainability
11. Are people getting smarter or dumber over time?
12. ...

# Evaluating experimental and non-experimental data outside of psychology

## 1. Intentional studies

- Efficacy of Covid-19 vaccines
- Effect of fat on longevity
  - Correlational designs (Harvard Nurse/physician study)
  - Experimental designs (Women's Health Initiative)
- Effect of caffeine on health

## 2. Non-intentional studies

- Effect of human action on environment
  - CO2 and global warming
  - CO2 and ocean acidification
  - Short term versus long term effect of oil spills
  - Iron levels and plankton blooms

## Syllabus and Text

1. [Complete syllabus](#) and [day by day syllabus](#) online
  - Includes the lecture notes, additional readings, assignments, general info
  - The [detailed syllabus](#) (syllabus.21.table.pdf) will be updated frequently
2. Two online (open source and free) text books will be used:  
[Research Methods Textbook: Research Methods in Psychology, 4th American Edition](#) by Rajiv S. Jhangiani, et al. (2019) and Russel Poldrack's [on line statistics text](#). Both of these may be downloaded for free as pdfs or e-books (recommended form)
3. APA manual of style (suggested but not required) (and several more [useful links](#) )



## Goals

1. To make you a better consumer of scientific information in general.
2. To introduce you to fundamental skills in psychological research in particular
  - Principals of experimental and correlational inference.
  - Basic and advanced statistical techniques.
  - The use of modern data analysis techniques
3. To facilitate your understanding of substantive courses in psychology.
4. To improve your ability to write and read scientific papers.
5. To help you appreciate the fun and mystery that is science.

## Research Methods: Requirements

1. 3 research papers
  - 1st based upon data collected in class and analyzed in class
  - 2nd based upon individually conducted data collection in a simulated experiment.
  - 3rd based upon individually designed and conducted experiment
2. 2 Midterm exams (short answer) (**Examples** are on the syllabus)
3. 1 Final exam (optional)
4. Class room participation and discussion
  - Ask questions if you do not understand.
  - You are not alone.
  - Try using our **URL: <https://campuswire.com/p/GB9DB2DE4>** page for help as well.

## Overview

1. Reasoning in research - review of stats
  - constructs and measures
  - why do findings not replicate?
2. Fundamentals of experimental design -
  - Within subjects -Between subjects
  - Randomization and counterbalancing
3. Measurement and Scaling and Interaction designs
4. Researching the literature
5. Ethics of research
6. Alternatives to experimentation - correlational designs, quasi experimentation
7. Use of computers packages for data analysis
  - We will use the R computer language
  - Not because it is confusing or difficult but because it is both easy and powerful

## Research Methods: Stats Review

1. Two identical **handouts**
2. For the **first one** (to do now), do not do the statistical test, just tell what test/procedure you would use.
3. For the **second one**, try to do all the problems. Answers will be discussed next week. (This is open book, you are welcome to use computer aids.) This is the first homework assignment and can be emailed to Lizz or put into the homework folder on Canvas.

## Study 1: An examination of list learning

1. For the first study, you need to have 10 sheets of paper to write your answers.
2. Before we begin, please go to the [qualtrics survey](#) that will record some answers after we finish.
3. Load the [Qualtrics Page](#), but do not start the questionnaire. Make sure that you can see my Zoom screen. Then we will start the study.
4. When we finish the study, you can start the qualtrics screen and answer the questions there.
5. First, I will assign each of you to one of two groups (A or B). Write down your group assignment so that you do not forget!