Research Methods in Psychology

Psychology 205: Winter, 2011

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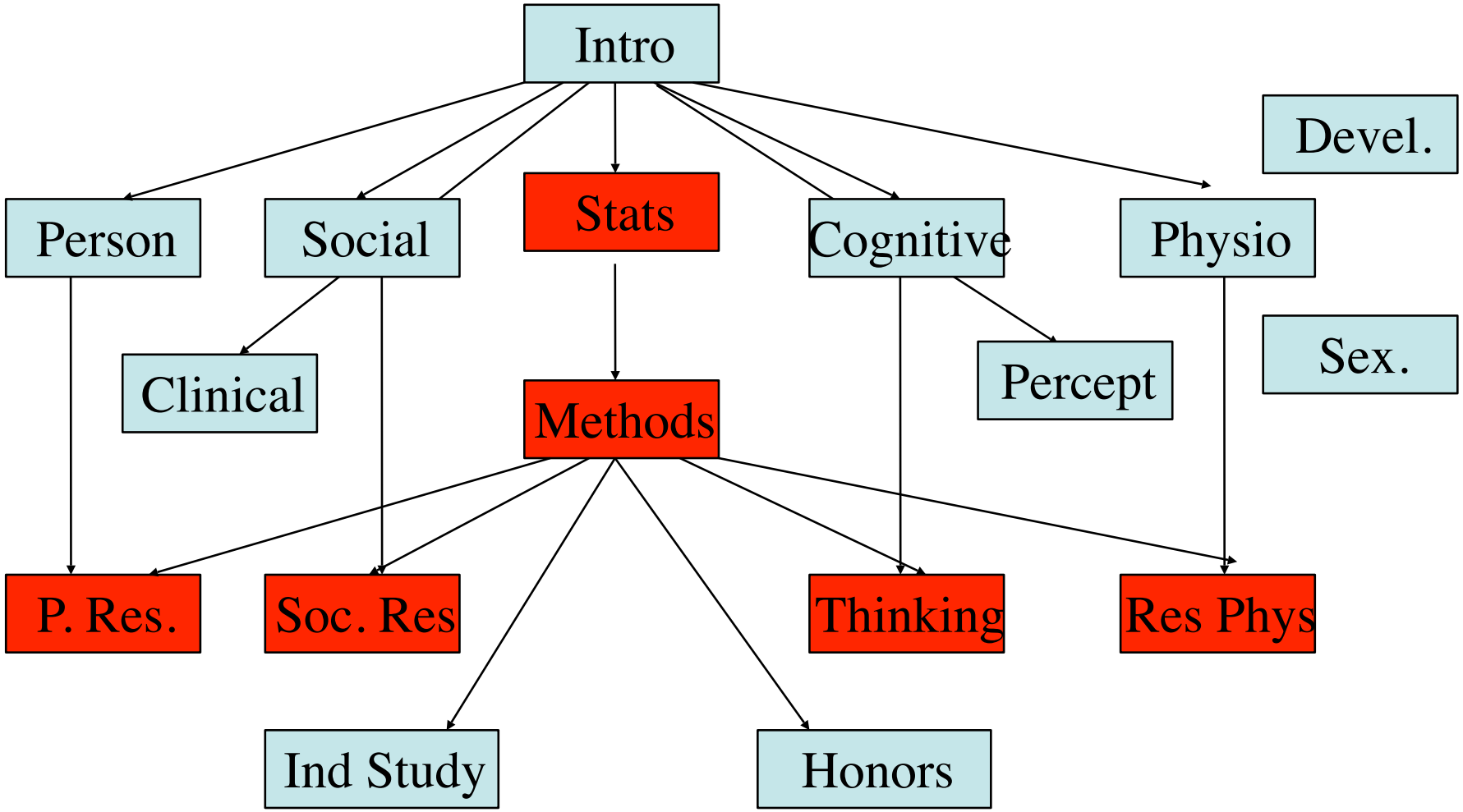
Research Methods in Psychology

- Goals
  1. Introduce fundamental skills in psychological research
  2. To facilitate understanding of substantive courses
  3. To make a better consumer of scientific information

The Psychology Major at NU

- Introductory Psychology
- Methodology Sequence
  - Statistics, Research Methods, Adv. Research
- Substantive Courses
  - Personality/Clinical/Social ("Column A")
  - Cognitive/Physiological ("Column B")
  - Other broad courses ("Column C")
- Advanced Research Courses ("Row 2")
- Independent Study and Honors

The Psychology Major at NU



Evaluation of experimental and non-experimental data

- In Psychology
  - Effectiveness of psychotherapy
  - Effectiveness of pharmocological interventions
  - Attitude change due to expert influence
  - Brain structures involved in memory
  - Effect of personality on human performance
  - Optimal design of aircraft control systems

Evaluations of experimental and non-experimental data

- Beyond Psychology
  - Intentional vs. non-intentional studies
    - Effect of fat on longevity
      - Correlational designs (Harvard Nurse/physician study)
      - Experimental designs (Women's Health Initiative)
    - Effect of human action on environment
      - Sewage, drinking water, and cholera
      - CO_2 and global warming
      - CO_2 and ocean acidification
      - Short term versus long term effect of oil spills
      - Iron levels and plankton blooms

Overview of course: Syllabus and Text

- Syllabus and detailed syllabus online at
  - http://personality-project.org/revelle/syllabi/205.html and
  - http://personality-project.org/revelle/syllabi/205/205.syllabus.table.html
- Includes the lecture notes, additional readings, assignments, general info
- syllabus.table.html will be updated frequently
- Text: Mark Leary, Introduction to Research Methods in the Social Sciences (required) (5th edition preferred)
  - APA manual of style (suggested but not required)

Research Methods: Goals

1. Introduce fundamental skills in psychological research
2. To facilitate your understanding of substantive courses
3. To make you a better consumer of scientific information

Research Methods: Requirements

- 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 Midterm exams (short answer)
- 1 Final exam (optional)
- Class room participation and discussion

Research Methods: Overview

1. Reasoning in research - review of stats
2. Fundamentals of experimental design -
   - constructs and measures
   - Within subjects -- Between subjects
3. Measurement and Scaling and Interaction designs
4. Researching the literature/Ethics of research
5. Alternatives to experimentation - correlational designs, quasi experimentation
6. Use of computer packages for data analysis

Observations and intuition

- For the next two slides, draw the path that the ball takes:

Bowling ball and cliff

- A bowling ball is rolled at high speed towards a cliff and then goes over the edge.
- Draw the path the ball takes:
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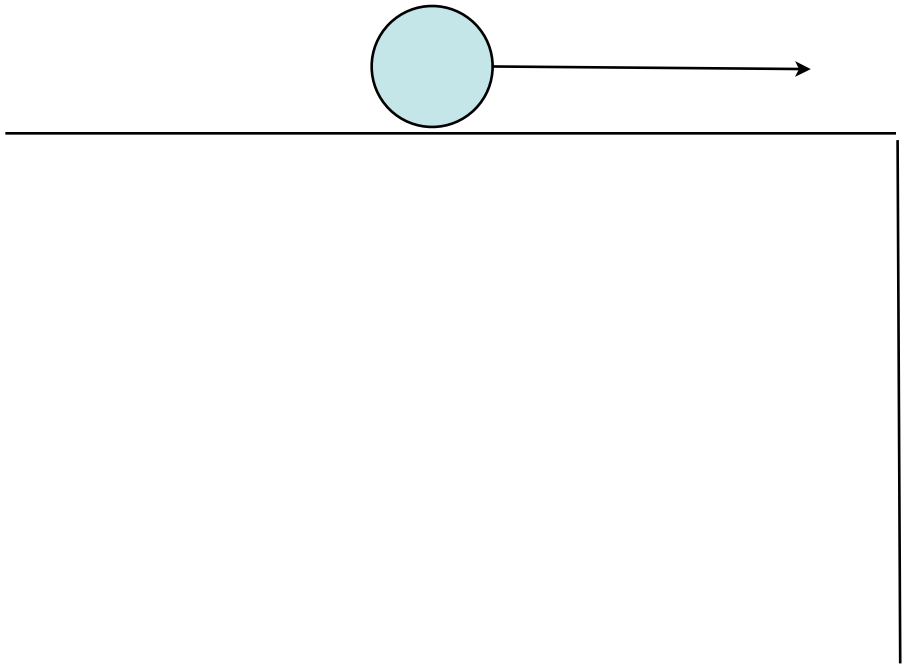
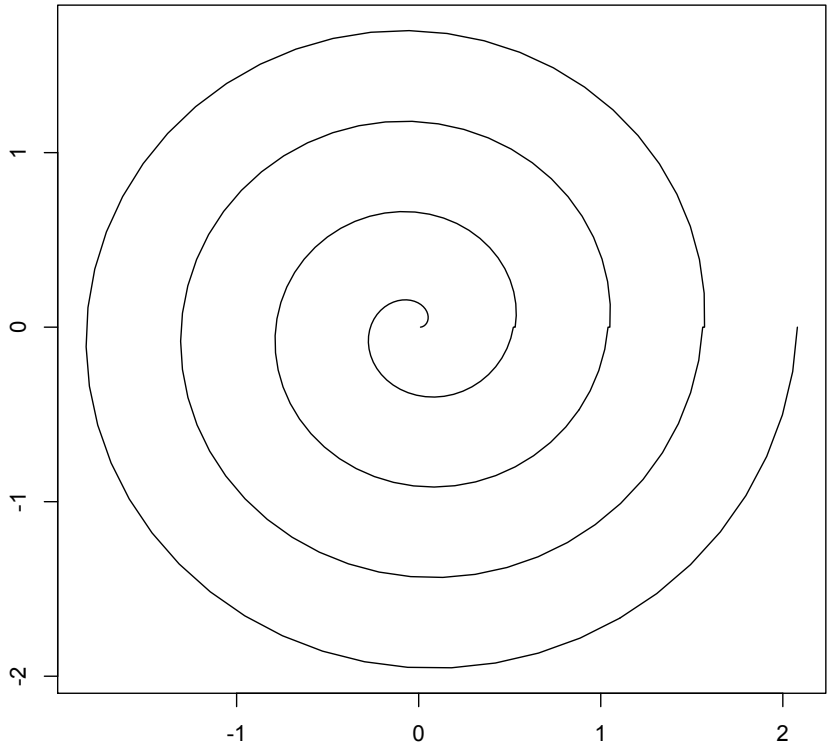


ball bearing in a spiral

- A ball bearing is going at high speed through a spiral tube (on a table). Draw the path the bb takes when leaving the spiral tube:



Research Methods: Stats review

Two identical handouts

- For the first one (to do now), do not do the statistical test, just tell what test/procedure you would use.

For the second one, do problems 1-6 (as homework)

Study 1: human memory

- Protocol:
  - Several lists of words will be presented (lists will be presented at different rates)
  - After each list is presented, you will be told to either RECALL all the words that you can from the list or do some simple arithmetic problems. Each math/recall sheet will be labeled A or B. The instruction will say:
    - RECALL if A MATH if B or
    - MATH if A RECALL if B
  - After an interval for RECALL or MATH, you will be shown another list …
  - After all lists are finished, there will be some more math followed by a recognition task.