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## Psychology 300

### Research Methods II

Fall 2012 ~ Lecture: MWF 9:00 – 9:50 a.m. ~ Lab: F 2:30 – 3:20

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**Professor:** Dr. Travis Wilson  
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Office hours: Monday 2:30-4:00 pm, Wednesday 2:30-4:00 pm, or by appointment

**Lab instructor:** Dr. Peter Naegele  
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**Teaching assistant:** Mr. Robbie Yu  
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Office hours: Fri 10:00-11:00 pm; Thurs, 3:00-4:00 pm

**Required text:** Howell, D. C. (2010). *Statistical methods for psychology, 8<sup>th</sup> Edition*. Belmont, CA: Cengage Wadsworth.

#### Course Description and Goals:

In this course, we will survey statistical techniques commonly used in psychology and other social sciences. We will review what you learned in Research Methods 1 and will build understanding of more complex methods throughout the semester. This course has 4 main objectives:

- Develop intuitive understandings of foundational statistical concepts
- Conduct appropriate analyses on and draw conclusions from complex data sets
- Coherently present empirical findings verbally and in writing
- Think critically about statistical and methodological information in popular media

#### Course Requirements:

*Pole pole ndiyo mwendo* (slow and steady is the way to go). Statistics is best learned a little at a time, slowly, surely, and incrementally. Because of this, the workload in this course is designed to be continuous. Don't be surprised if you are doing statistics 6 out of 7 days a week. Believe it or not, this is for your benefit. (Admittedly, you might be a stronger believer *after* completing the course.)

-- **Attendance:** Daily attendance is required. The content of this course accretes; what we learn in Chapter 1 will be foundational to Chapters 2, 3, 4, and so on.

-- **Reading:** Read the text. Contrary to popular opinion, reading statistics textbooks IS worth the effort. For best results (I am not joking here), read the text before class and again after class. The text will prepare you well for the lectures and will help clear up anything you thought was confusing during class. I will do my best to steer you towards the most salient sections.

Throughout the semester, you will also read relevant empirical papers (available electronically) that report the statistical techniques we are currently learning about. These papers will give you a sense of how a particular statistical tool is used in psychology, and how to report the statistical method and findings in writing. Focus on the statistical parts of these articles more than the theory behind them.

-- **Daily Questions:** Prior to each class, I will provide you a set of questions for you to master. These questions may be problems from the book, tasks that I invent, or any combination of the two. I will choose ONE of these questions for you to answer, without notes, at the start of class. (In some circumstances, more involved problems can be prepared ahead and turned in at the start of class). Do the problems every day. There will be NO make-ups, but I will drop your two lowest grades at the end of the semester. The DQs are meant to benefit you in the long run; doing them each day will be continuous preparation for the quizzes and projects.

-- **Quizzes:** There will be 3 in-class quizzes during the semester. They will be composed of questions very similar to those assigned as DQs. Make-up quizzes will only be given in cases of documented illnesses or emergencies.

-- **Data Projects and Lab Assignments:** In the laboratory section of this course, you will get the opportunity to use statistical procedures as psychologists use them: with real data sets and with a statistical computer package. During lab, you will learn to conduct and interpret analyses with SPSS, the most widely used computer program. The assignments given during lab sessions will be graded by Dr. Naegele. You will also complete (individually) 4 larger data projects, based on what you have covered in lab; I will grade these.

-- **Final project.** At the end of the semester, when you have mastered a variety of statistical procedures, I will give you a data set to analyze and write up on your own. This project is the culminating task of the semester and will require you to use all of your knowledge in making appropriate decisions and conclusions.

-- **Final Grades:** Sound like a mountain of work? It is, but this has two advantages. First, you will be held accountable continually for staying on top of the material, which is truly the best way to learn it. (*Pole pole ndiyo mvendo.*) Second, no single assignment can ruin your chances of a respectable grade. You will have many chances to redeem yourself if you happen to have a bad day.

|                  |                                   |
|------------------|-----------------------------------|
| Daily questions: | 25% (~1% each)                    |
| Quizzes:         | 25% (~8% each)                    |
| Lab Assignments: | 10% (~2% each)                    |
| Data Projects:   | 40% (P1 – P4: ~6% each, FP = 15%) |

*Note.* The grade distribution above is subject to slight modification, as necessary.

**Late work:** Should you happen to have a personal disaster of some kind this semester (and I hope you don't), you may have 24 extra hours to complete any ONE assignment (excluding the Final Project and excluding DQs, which must be completed in class on the appointed day). I will give NO OTHER EXTENSIONS. Please note that College policy prevents course instructors from granting

extensions on final exams without prior approval of the Dean of Studies. Beyond your one freebie, work that is received after the deadline will be graded down 10% per day.

### Resources Available to You

-- **Website:** The course website includes a great deal of information relevant to this course, including the syllabus and course schedule. Please note: lab materials, data projects, DQs, and the solutions for these assignments will only be available via the website. You will also be able to download the class overheads from the website.

-- **Staff:** Dr. Wilson, Dr. Naegele, and Mr. Yu are available to help you with any questions you might have. Our office hours are listed at the top of the syllabus. If these times are not convenient, please contact one of us to schedule an appointment. *We are open to fielding any question—please ask.* As a general rule, I will respond to your emails within 24 hours. If you email me a question during the weekend (i.e., after 3 pm on a Friday), then I will respond the following Monday. Please restrict to office hours lengthier questions regarding course content.

-- **Students with disabilities:** If you have a disability, please check in with the Office of Disability Services. When I receive a letter from ODS on your behalf, I will be happy to provide all appropriate accommodations for you in this class.

-- **Tutors:** Tutors are available for those having extensive trouble in the course. Please let me know early on if you think you might benefit from this service.

### The Honor Code

I want us all to be very clear about how the honor code applies to the assignments in this course:

-- **Daily questions** can be worked on collaboratively outside of class, but when you answer the DQ in class, you must work independently.

-- **Lab assignments** can be worked on collaboratively. However, keep in mind that if you do not thoroughly understand how to do the analyses yourself, you will have great difficulty with the data projects. Share ideas, yes, but do not rely too heavily on others for help.

-- **Quizzes** are completely your own work, but you are encouraged to prepare for quizzes with others.

-- **Data projects** are completely your own work, from start to finish.

### Schedule of Topics

| <b>Date</b>              | <b>Topic</b>                        | <b>Reading</b>             | <b>Due</b>      |
|--------------------------|-------------------------------------|----------------------------|-----------------|
| Wed 9/5                  | Introduction                        |                            |                 |
| Fri 9/7                  | Descriptive statistics              | 1 & 2 (skim); Gould 2006a  | DQ, Quiz (U.T.) |
| Mon 9/10                 | Normal distribution, z scores       | 3                          | DQ              |
| Wed 9/12                 | A statistics rite of passage        | Gould, 2006b               | DQ              |
| Fri 9/14                 | Hypothesis Testing                  | 4                          | DQ              |
| Mon 9/17                 | t tests                             | 7.1 – 7.5                  | DQ              |
| Wed 9/19                 | Effect size, variance               | 7.5 – 8.2                  | DQ              |
| Fri 9/21                 | Power                               | 8.3 – 8.7, Maruyama, 2007  | DQ              |
| Mon 9/24                 | One-way anova                       | 11.1 – 11.12               | DQ              |
| Wed 9/26                 | <b>NO CLASS</b>                     |                            |                 |
| Fri 9/28                 | One-way anova                       | Hane & Fox, 2006           | DQ              |
| Mon 10/1                 | Contrasts                           | 12.11                      | DQ              |
| Wed 10/3                 | Trend analysis, review              | 12.13                      | DQ              |
| Fri 10/5                 | <b>QUIZ 1</b>                       |                            |                 |
| Mon 10/8                 | Two factor anova                    | 13.1 – 13.11               | DQ              |
| Wed 10/10                | Interactions, contrasts             | Hatzenbuehler et al., 2009 | DQ              |
| Fri 10/12                | Repeated measures anova             | 14.1 – 14.2                | DQ, <b>P1</b>   |
| Mon 10/15                | Mixed model anova                   | 14.4 – 14.5                | DQ              |
| Wed 10/17                | Mixed model anova                   | Meier et al., 2004         | DQ              |
| Fri 10/19                | Mixed model anova                   | 14.6 – 14.8                | DQ              |
| **** FALL RECESS ****    |                                     |                            |                 |
| Mon 10/29                | Mixed model anova                   | 14.10 – 14.13              | DQ              |
| Wed 10/31                | Review/catch-up                     |                            | DQ, <b>P2</b>   |
| Fri 11/2                 | <b>QUIZ 2</b>                       |                            |                 |
| Mon 11/5                 | Intro to correlation & regression   | 9.1 – 9.5                  |                 |
| Wed 11/7                 | More on correlation & regression    | 9.6 – 9.12                 | DQ              |
| Fri 11/9                 | Multiple regression                 | 15.1 – 15.6                | DQ              |
| Mon 11/12                | Partial correlations                | 15.7 – 15.8                | DQ              |
| Wed 11/14                | Categorical IV's, diagnostics       |                            | DQ              |
| Fri 11/16                | Interactions                        | 15.9 – 15.13               | DQ, <b>P3</b>   |
| Mon 11/19                | Interactions, curvilinear relations |                            | DQ              |
| Wed 11/21                | Mediation, moderation               | Bartholow & Heinz, 2006    | DQ              |
| Fri 11/23                | <b>NO CLASS</b>                     |                            | DQ              |
| Mon 11/26                | Logistic regression                 | TBA                        | DQ              |
| Wed 11/28                | Logistic regression                 | TBA                        | DQ              |
| Fri 11/30                | ANCOVA                              | 16.5-16.9                  | DQ              |
| Mon 12/3                 | ANCOVA                              | Inzlicht et al., 2006      | --              |
| Wed 12/5                 | Review/catch-up                     |                            | <b>P4</b>       |
| Fri 12/7                 | <b>QUIZ 3</b>                       |                            | --              |
| Mon 12/10                | Approaching complex data sets       |                            | --              |
| Wed 12/12                | Reporting results                   |                            | --              |
| Fri 12/14                | Final project Q & A                 |                            | --              |
| **** READING PERIOD **** |                                     |                            |                 |
| Tue 12/18                | FINAL PROJECT DUE, 4:00 pm          |                            |                 |

*Note:* Chapter/section numbers refer to Howell text, DQ = Daily Question, P = Data Project.  
The schedule above (except for the final project) is subject to slight modification, as necessary.

## Supplementary Readings (available electronically)

- Bartholow, B. D. & Heinz, A. (2006). Alcohol and aggression without consumption. *Psychological Science, 17*, 30 – 37.
- Gould, S. J. (2006a). The median isn't the message. In S. Rose (Ed.), *The Richness of Life: The Essential Stephen Jay Gould* (pp. 26-31). New York: Norton.
- Gould, S. J. (2006b). The streak of streaks. In S. Rose (Ed.), *The Richness of Life: The Essential Stephen Jay Gould* (pp. 32-40). New York: Norton.
- Hane, A. A. & Fox, N. (2006). Ordinary variations in maternal caregiving influence human infants' stress reactivity. *Psychological Science, 17*, 550 – 556.
- Hatzenbuehler, M. L., Nolen-Hoeksema, S., & Dovidio, J. (2009). How does stigma “get under the skin”? The mediating role of emotion regulation. *Psychological Science, 20*, 1282 – 1289.
- Inzlicht, M., McKay, L., & Aronson, J. (2006). Stigma as ego depletion: How being the target of prejudice affects self-control. *Psychological Science, 17*, 262 – 269.
- Maruyama, G. & Peterson, J. (2007). Editor's Forward to the Article “Psychologists and the Use of Torture in Interrogations.” *Analyses of Social Issues and Public Policy, Vol. 7, No. 1, 2007, pp. 1—6*. [Focus on pp. 3 – 4.]
- Meier, B. P., Robinson, M. D. & Clore, G. L. (2004). Why good guys wear white: Automatic inferences about stimulus valence based on brightness. *Psychological Science, 15*, 82 – 87.