PSYCH 248: STATISTICAL METHODS IN PSYCHOLOGY (Spring 2013)

Instructor (Lecture): Emmanuel (Mani) Garcia, MA | **E-mail:** egarcia3@gc.cuny.edu

LECTURE: M & W 5:35 PM – 6:50 PM (Room: HN C108)

LAB: W 3:35 PM – 5:25 PM (HE B118)

HELP FOR YOU

Office Hours: by appointment, email me: egarcia3@gc.cuny.edu

Teaching Assistants: TBA (Administrative TA): @hunter.cuny.edu
TBA (Lab TA): @hunter.cuny.edu

Statistics Tutoring: Undergraduate stats tutors will be available during specified office hours for help with homework, assignments, and studying for assessments. These are very smart students who received an A+ in this class last semester. They are very motivated to help YOU and well trained to do so. Connect with them and you'll succeed! The tutoring center is located in room 627HN. A schedule will be provided shortly.

SUPPLIES YOU NEED FOR THIS COURSE

Text: *Statistics for the Behavioral Sciences* by Gravetter & Wallnau (9th ed.) with Aplia.com and Virtual Psych Lab (for online graded practice, lab exercises, or extra credit). Book Options:

1. Custom Bundle 9781285334301:Loose-leaf copy of textbook, plus 2 semester access to Aplia.com, Virtual Psych Lab, +e-book. Available at HC bookstore ($163) or from the publisher at a microsite: www.cengagebrain.com/micro/cunyhcpsych248 for $126 (w/free shipping).

2. Digital only: Aplia, Virtual Psych Lab + ebook $112 from Cengage brain via microsite listed above.

Note: Aplia & ebook are web-based, temporary, can't be printed or downloaded. I recommend #1 with hard copy because it is useful to have this stats book when you take 250 or 300-level classes.

Calculator: A basic calculator is required.

Stapler: Homework that is not stapled will not be accepted. Folding pages together or any other creative ways I've seen to bind pages together is not stapling – and will not be accepted. This is to your benefit so pages of your homework won't be lost, and it will keep the people grading your work in a good mood.

Paper: I'm trying to reduce the amount of paper used in this course, however some work can only be completed on paper. That said, I will not accept work on paper that is not 8.5 x 11 in size and clean on all edges. This means no ripping a piece of paper out of the tiny spiral notebook you carry around in your back pocket and turning it in. For reasons you will discover statistics need to be well organized, and this requires using paper with enough room for proper organization. Also, it is easier to keep track of work on paper that is all the same size and once again it will keep the people grading you in a good mood.

Attitude: Your attitude is the most important supply to bring to this course. What works best is a good sense of humor, a refusal to give up, openness to working collaboratively, and a love of chocolate. Chocolate haters are tolerated with respect, but if you're a loner who prefers to work in isolation or gives up when things get tough this is definitely not the class for you.

COURSE DESCRIPTION

Face it – statistics are here to stay! At the very least, statistics will occupy the next few months of your life, and affect your GPA (this is a 4 credit class). If you plan to attend graduate school or a career in academia, statistics may very well be an important part of the rest of your life. Now take a moment to breathe…

My goal in this course is simple: to help you earn an A+ in this course and to help you actually enjoy the process. I believe we can accomplish this goal in three very concrete ways:

1. By building a solid foundation of **knowledge** (the *whats* and *whys*) and **skill** (the *hows*) in common statistical methods and their applications in psychology and other behavioral sciences. [*see below for specific content covered*]

2. By helping you see the **value** of gaining the above mentioned statistical knowledge and skill (the *what-fors*).

3. By working on gaining knowledge and skill as a supportive and collaborative community of learners committed to success as our only possible outcome.

LEARNING OBJECTIVES

Knowledge:

- To understand and know how to explain key statistical concepts
- To build your lexicon (or vocabulary) of statistical terminology
- To recognize and understand the notation and symbols common in statistics

Skill:

- To gain the basic skills needed to collect, organize, analyze, interpret and present (in oral, written, and visual forms) data
- To identify and apply appropriate statistical methods based on research design, hypothesis/objective, type of data (scale of measurement), number of variables, etc.
- To recognize the utility and limitations of statistical techniques (in other words to understand what statistics *can* and *cannot* do)

- To read and understand the statistics presented in the scientific/professional literature

- To dispel common myths about statistics (example myth: you have to be good at and love math to be good at and love statistics)

Community:

- To learn how to work effectively in a group on learning and presenting statistics (e.g. homework, stats manuals, oral presentations), and on acing assessments of your knowledge.

- To learn to give and accept constructive feedback from team members about our work (this includes my work as your instructor). This is called a "peer review" process. Peer review is standard practice in research labs (where statistics are used) and in the publication of research (where statistics are reported). IMPORTANT: A syllabus is a contract, so by staying in this class you are agreeing to participate in a peer review process, which includes having your work evaluated by classmates. If you are not comfortable with this you should switch to another section of this class.

- To provide much needed moral and practical support to each other with the goal of everyone earning an A+ and enjoying the process. You have me, your TAs, and the stats tutors provided by the department to help you succeed; but you will also work in small teams that support each other, and those teams will form a class that is designed to function as a learning community. IMPORTANT: Again, if you are not comfortable with this you should switch to another section of this class. You will be graded on your participation in collaborative activities - and won't do well if you aren't actively involved.

SPECIFIC CONTENT COVERED

This course covers descriptive and inferential statistics, including frequency distributions, measures of central tendency, measures of variability, sampling, probability and the normal distribution, and tests of hypothesis such as: t-tests, ANOVA, chi-squared, linear correlation and regression. Study designs (observational and experimental) will also be addressed.

The IBM-SPSS software will be used for data analysis.

WHAT YOU CAN EXPECT FROM ME/ WHAT I EXPECT FROM YOU

A culture of trust

Every group of people has a culture. The best kind of culture to learn and work in is a culture that is high in trust, especially when your work is challenging. I have taken the first step in setting up a culture of trust by assigning all of you "A+'s" in this class from the beginning. So celebrate, you have a 4-credit "A+" in PSYCH 248…so far. I want each of you to keep your

"A+" in this class, and that will take hard work, and your help in building and maintaining a culture of trust in our class. An important step in building a culture of trust is defining expectations, so here is what you can expect from me, and our teaching assistants; and what we expect from you:

Expect me (and our teaching assistants to):

- Be punctual (with class/lab times, grading, and responding to all communication)
- Be SUPER organized (this is critical for us and for you, we will discuss strategies in class)
- Be approachable (we are all in this together, let us know how we can help you)
- Be available to help you succeed (we want you to keep your "A+," so we are here to help)
- Communicate clearly all class related information/requirements (if you are lost let us know)

I expect you to:

- Work well individually and in groups (each group is responsible for presenting on homework twice this semester, and presenting your final project).
- Be punctual (with class attendance, readings, homework, and exams. Note: this is NON-NEGOTIABLE for your benefit, I promise)
- Be SUPER organized (the class is designed to help you get and stay organized)
- Be visible (if we can't forget your face you're going to do better in this class)
- Communicate clearly your needs and any struggles (we can't help you if we don't know)

YOUR WORK AND HOW IT WILL BE GRADED

Homework: Most homework assignments will be based on the readings (most from the textbook, but also from other sources) and will consist of two parts: [Part 1]: You will complete two homework problems online on our course companion site Aplia.com. Aplia gives you a grade right away and you're allowed unlimited repeats on any problem you didn't do well on, with feedback, so you get maximum points and are able to work out any confusion you have. [Part 2]: You will incorporate the homework problems you work on into your Personal Statistics Manuals (more details will be provided in class). Remember, presenting as a group is part of your homework requirement. It is essential to stay current with your homework so homework will NOT be accepted late. Your 3 lowest homework grades will be dropped *if* you put real effort into all the assignments.

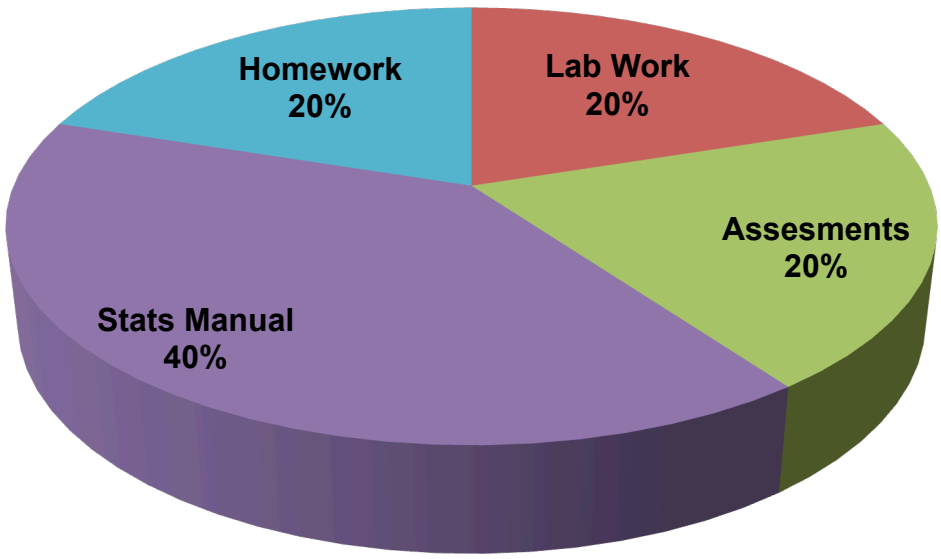
Lab Work: In lab you will learn the basics of using SPSS, statistical software. Assignments will include literature searches, data generation, data entry, data analysis, interpretation, summary report writing (using the APA guidelines) and editing your Personal Statistics Manual – all aimed to give you the most useful Personal Statistics Manual possible. In lab you will also have an opportunity to earn extra credit with online quizzes (Edmodo.com) and other collaborative activities.

Assessments: There are four cumulative assessments. What I will be assessing is NOT your

ability to memorize a bunch of random facts the night before our assessment and regurgitate them on an exam – then walk away burnt out and not remembering a single thing. What I WILL be assessing is your ability to take a difficult problem, and solve effectively it using the resources available to you. In this class the resources available to you will be: your class notes, class handouts, your Personal Statistics Manual, the readings, and your team. Yes – that's right, my assessments are not about you sitting alone wishing you could remember all those things you read alone – they are about working as a team and learning community using online and printed resources you have to solve difficult problems the best way. Research is performed and published using this method ("peer review") and that is the model we will use in our class. In addition you will be able to correct errors in your assessments and improve your grades if you don't like them, as long as you follow the rules. *If* you participate in all four Assessments you can drop your lowest score. Rules about all this will be discussed more in class, and a written version of them will be provided on paper and online (Edmodo.com, Blackboard).

Personal Statistics Manual: Each of you will leave this class with your own Personal Statistics Manual that we will develop throughout the semester. I can't emphasize how important this Manual is to your success in this class and future statistics classes. Your homework and lab assignments will revolve around your creation and maintenance of this Manual. After you leave this class the Manual will be useful in Experimental Psychology (PSYCH 250) and other stats classes you may take. Details about your Personal Statistics Manual will be provided in class.

Quizzes: There will be a short quiz at the beginning of some classes. You will thank me in the end. Not only will frequent testing help you retain information – you can earn a significant amount of extra credit with quizzes.



Extra Credit from Quizzes: Good news, extra credit points are applied to your FINAL GRADE. The total extra credit points you can earn are 10, which is a whole letter grade worth of points – so worth taking advantage of.

Fully engaging in homework, lab work, assessments, quizzes, presentations, and preparing your Personal Statistics Manual will help you gain a solid foundation of knowledge and skill in statistics. Combined this work utilizes three techniques that are believed (with good evidence) to enhance learning:

1. *Levels of processing effect:* when the more you think about the meaning of something, and connect it to what you already know (*elaborative rehearsal*) leads to deeper processing and enhanced memory. (Craik & Lockhar, 1972; Radvansky, 2006)
2. *Distributed practice:* when you space out studying and learning over multiple consistent study sessions (Radvansky, 2006; Rohrer & Taylor, 2006)
3. *The testing effect:* when frequent testing on material has a powerful positive effect on future retention (Roediger & Karpicke, 2006).
4. *Learning through teaching:* when teaching something opens up unique learning opportunities for the TEACHER (Cortese, 2005).

(For more information about my what influences my teaching methods visit the folder labeled "Why I teach the way I do" in Edmodo).

Tentative Schedule

DAY/DATE	LECTURE TOPIC	ASSIGNMENT
M 1/28 W 1/30 Lab 1	How to Keep your "A" in This Class/ Introductions Statistics & Scientific Methods/General Linear Model	 Chapter 1, **Quiz 1** * hw 1
M 2/4 W 2/6 Lab 2	Organizing Data: Frequency Distributions Measures of Central Tendency	Chapter 2 * hw 2 (t1) Chapter 3, **Quiz 2** * hw 3 (t2)
M 2/11 W 2/13 Lab 3	Measures of Variability z-scores & Standardized Distributions	Chapter 4 * hw 4 (t3) Chapter 5, **Quiz 3** * hw 5 (t4)
M 2/18 *No class* W 2/20 *No lab*	*College is closed for President's day* Review Chapters 1 – 5 (**Monday Schedule**)	 **Stats Manual: Chapters 1 – 5 due**
M 2/25 W 2/27 Lab 4	**Cumulative Assessment 1, Chapters 1 – 5** Go over Assessment 1/ Finish Wiley Stats Videos	 **Wiley Stats Videos Due**
M 3/4 W 3/6 Lab 5	Probability & Samples Distributions of sample means	Chapter 6 * hw 6 (t5) Chapter 7, **Quiz 4** * hw 7 (t6) **Article for analysis due**
M 3/11 W 3/13 Lab 6	Logic of Hypothesis Testing One-sample *t*-tests / Independent sample *t*-tests	Chapter 8 * hw 8 (t7) Chapter 9 – 10, **Quiz 5** * hw 9 (t8)
M 3/18 W 3/20 **Lab Assessment 1**	Related sample *t*-tests/ Review Chapters 6 – 11 **Cumulative Assessment 2, Chapters 6 – 11**	Chapter 10 – 11 * hw 10, 11 **Stats Manual: Chapters 6–11 due**
M 3/25 – T 4/2	**SPRING BREAK**	**Have fun! Rest!**
W 4/3 Lab 7	Go over Assessment 2/ start ANOVA	Chapter 12, **Quiz 6**
M 4/8 W 4/10 Lab 8	One-way ANOVA Repeated Measures ANOVA	Chapter 12 * hw 12 (t1) Chapter 13, **Quiz 7** *hw 13 (t2)
M 4/15 W 4/17 Lab 9	Factorial ANOVA 1 Factorial ANOVA 2	Chapter 14 (t3) Chapter 14, **Quiz 8** *hw 14 (t4)
M 4/22 W 4/24 **Lab Assessment 2**	Review Chapters 12 – 14 **Cumulative Assessment 3, Chapters 12 - 14**	**Stats Manual: Chapters 12–14 due**
M 4/29 W 5/1 Lab 10	Go over Assessment 3 / Pearson Correlation Pearson Correlation/ Linear Regression 1	Chapter 15 (t5) Chapter 15,16, **Quiz 9** * hw 15 (t6)
M 5/6 W 5/8 Lab 11	Linear Regression 2 The General Linear Model (GLM)	Chapter 16 * hw 16 (t7) GLM Reading, **Quiz 10** * hw GLM
M 5/13 W 5/15 **Lab Assessment 3**	Chi-Square & Non-Parametric tests/Review **Cumulative Assessment 4, Chapters 15 - 17**	Chapter 17 * hw 17 (t8) **Stats Manual: Chapters 15–17 due**
M 5/20 **W 5/22 5:20 – 7:20 PM**	*No Class* **Go over Assessment 4 / Stats Manual Presentations**	 **Personal Statistics Manuals due in person and electronically.**

ADDITIONAL COURSE RESOURCES AND POLICIES

Resources

Blackboard: Syllabi, assignments, helpful hints, and more will also be available to you via blackboard announcements, and online materials. There is a blackboard site for all sections combined (has lab materials etc) and one for our specific section (used for computer assignments, gradebook, etc).

Aplia: an online site that offers required homework questions and additional review materials to help you learn stats concepts. You can purchase the package, get the Aplia code and it includes access to our e-textbook & VPL.

How to access your Aplia course:

Instructor: Mani Garcia
Start Date: 01/28/2013
Course Key: 8W5K-DHP9-MUFX

Registration:

Aplia is part of CengageBrain, which allows you to sign in to a single site to access your Cengage materials and courses.

1. Connect to http://login.cengagebrain.com/
2. **If you already have an account, sign in.** From your Dashboard, enter your course key (**8W5K-DHP9-MUFX**) in the box provided, and click the *Register* button.
   If you don't have an account, click the *Create a New Account* button, and enter your course key when prompted: **8W5K-DHP9-MUFX**. Continue to follow the on-screen instructions.

Policies

Missing Assessments: Make-up assessments are not allowed, except in case of medical emergencies that can be documented. If possible, please email me before the assessment if you know you will miss it.

Academic Integrity: Hunter College regards acts of academic dishonesty (e.g., plagiarism, cheating on examinations, obtaining unfair advantage, and falsification of records and official documents) as serious offenses against the values of intellectual honesty. The College is committed to enforcing the CUNY Policy on Academic Integrity and will pursue cases of academic dishonesty according to the Hunter College Academic Integrity Procedures.

From the Office of AccessABILITY: In compliance with the American Disability Act of 1990 (ADA) and with Section 504 of the Rehabilitation Act of 1973, Hunter College is committed to ensuring educational parity and accommodations for all students with documented disabilities and/or medical conditions. It is recommended that all students with documented disabilities (emotional, medical, physical, and/or learning) consult the Office of AccessABILITY located in Room E1124 to secure necessary academic accommodations. For further information and assistance, please call (212-772-4857) / TTY (212-650-3230).