

**Proposal Title:** PSY 2010 - Research Methodology: Introductory Statistics in Psychology

**Credit Hours:** 3

**Proposed Change:** Change prerequisite to Math 1010 and remove requirement for USTU 1050.

**Rationale:** Aligns prerequisites with current requirements of the major,

**Current Catalog Description:** Descriptive and inferential statistics with computer analysis of data from psychological and other social sciences. Traditional and modern descriptive techniques, correlation and regression analysis, probability concepts, inferential techniques on means through analysis of variance, power analysis, and selected nonparametric techniques are presented. The use of state-of-the-art computer programs for analysis of data is emphasized in the PSY 2040 laboratory which is required for Psychology majors. Every semester.

Prerequisite: Math ACT subscore of 22 or higher or USTU 1050 or department head approval.

**Proposed Catalog Description:** Descriptive and inferential statistics with computer analysis of data from psychological and other social sciences. Traditional and modern descriptive techniques, correlation and regression analysis, probability concepts, inferential techniques on means through analysis of variance, power analysis, and selected nonparametric techniques are presented. The use of computer programs for analysis of data is emphasized in the corequisite PSY 2040 laboratory which is only required for Psychology majors. Every semester.

Prerequisite: Math ACT subscore of 22 or higher, or MATH 1010, or department head approval.

Corequisite: PSY 2040 for Psychology majors only.

**Sample Syllabus Follows:**

15-083 (a)

**RESEARCH METHODOLOGY: INTRODUCTORY STATISTICS IN PSYCHOLOGY, \*\*\*\*, Section 0**

**COURSE:** PSY 2010, Section 0, CRN 42324  
**TITLE:** Research Methodology: Introductory Statistics in Psychology  
**CREDIT:** 3 credit hours  
**CLASS SCHEDULE:** 1:40 – 2:55 pm, Tuesdays and Thursdays  
**CLASS LOCATION:** GROT 317

**FACULTY:** Dr. Chris Cunningham  
**OFFICE PHONE:** 423-425-4264  
**OFFICE LOCATION:** 350G Holt Hall (Psychology)  
**OFFICE HOURS:** Tuesdays from 3:00 – 4:30 pm or by appointment most other days of the week. It is easy to schedule an appointment with me; go to this website and following the instructions there: <http://www.meetme.so/DrChrisCunningham>. If you are scheduling a meeting, please bring your course materials and questions in writing. You are also welcome to e-mail me ([chris-cunningham@utc.edu](mailto:chris-cunningham@utc.edu)) or talk to me before/after class with specific questions; I do my best to respond to student e-mails within 24 hours.

**PREREQUISITES AND COREQUISITES:** To be successful in this course, you are required to have a Math ACT subscore of 22 or above, or completed MATH 1010 with a basic understanding of algebra. If you are a psychology major (or if you want to learn how to use one of the most common statistical software programs available, SPSS), you are also required to be enrolled in PSY 2040. *If you do not meet one or more of these requirements, you need to speak to me during the first week of classes.*

**CATALOG DESCRIPTION:** Descriptive and inferential statistics with computer analysis of data from psychological and other social sciences. Traditional and modern descriptive techniques, correlation and regression analysis, probability concepts, inferential techniques on means through analysis of variance, power analysis, and selected nonparametric techniques are presented. The use of computer programs for analysis of data is emphasized in the corequisite PSY 2040 laboratory which is only required for Psychology majors. Every semester. Prerequisite: Math ACT subscore of 22 or higher, or MATH 1010, or department head approval. Corequisite: PSY 2040 for Psychology majors only.

**COURSE DESCRIPTION:** Descriptive and inferential statistics with computer analysis of data from psychological and other social sciences. Traditional and modern descriptive techniques, correlation and regression analysis, probability concepts, inferential techniques on means through analysis of variance, power analysis, and selected nonparametric techniques are presented. The use of computer programs for analysis of data is emphasized in the corequisite PSY 2040 laboratory which is only required for Psychology majors. Every semester.

In this course you will be introduced to statistical concepts used in Psychology and other behavioral and social sciences. This course also satisfies the university's general education requirement in Statistics. *It may not fulfill the statistics requirement for certain majors, so check with your advisor if you are uncertain about the requirements for your specific major.* In this course we will cover descriptive and inferential statistical methods and their related theoretical underpinnings. Once you have completed this course you should have the knowledge, skills, and abilities necessary to understand and work with basic statistics both within the field of psychology and in your broader personal and future professional life. Specific learning objectives for this course, therefore, are to:

- Improve your understanding of basic quantitative concepts such as numbers, data collection strategies, and statistical analysis techniques
- Introduce you to the basic elements of probability theory and its applications
- Further develop your mathematical and logical reasoning skills
- Explain the value of statistics to your own life and the lives of those around you

- Teach you appropriate statistical vocabulary and notation so you can better understand statistics used in psychology and other social science fields
- Improve your computational and procedural skills when working with basic statistics
- Challenge you to improve your course note- and test-taking skills
- Push you to improve your technical writing abilities

**Please note:** Students can maximize their chances of successfully meeting these objectives by following course guidelines, attending all class meetings, completing all assigned work, and trying their best to meet course expectations.

**COURSE LEARNING OUTCOMES:** Upon completion of PSY 2010, students will be able to:

- 1) Apply conceptual understandings of basic statistical principles to real-world situations.
- 2) Use statistical thinking.
- 3) Explain statistical concepts and interpret statistical results using appropriate statistical vocabulary.
- 4) Apply techniques of descriptive and inferential statistics and basic probability principles to real data.
- 5) Recognize the strengths and limitations of statistics in addressing human problems and conduct investigations of statistically accessible problems.
- 6) Use software packages for data analysis and statistical understanding.

**EVALUATION/ASSESSMENT:** I do not "give" grades; you earn them by completing your homework, exams, quizzes, and by participating in class. All homework and exam responses will be graded in terms of completeness, accuracy, and clarity. This means you must show all your work at all times to earn maximum credit. At the end of the semester your grade will be based on your performance on the extent to which you meet the following course evaluation components:

<u>Grade</u>	<u>Total points earning this grade</u>
A	230 – 255
B	204 – 229
C	178 – 203
D	153 – 177
F	< 153

**Classroom courtesy:** Succeeding in this course will require more than your passive presence in the classroom. Make these classes a priority: Tuesday and Thursday afternoons are your opportunities to learn about statistical methods within psychology and the behavioral sciences. To ensure that everyone has the best opportunity to learn this material, please make every effort to be on-time to class. If you must leave a class meeting at any point, please do not disrupt others.

**Class notes:** Via our course Blackboard site, I will provide weekly starter slides and narrative how-to guides (when appropriate) regarding the class materials for each week. It is your responsibility to take notes during each class and to ask questions along the way if/when you need help understanding topics that you find difficult. You will need my handouts and your class notes to complete your assignments and do well on the course exams. Please make sure to visit our course UTCOnline site before each class for a copy of that day's slides; these materials may help you take efficient notes during class.

**Reading:** Chapters from your text will be assigned readings each week. At times, supplemental readings will also be made available. You are expected to complete all reading *before* you arrive at each week's class meeting. *This is for your own benefit*, as research has shown that students who read and try to understand new material before attending lectures are more likely than non-readers to (a) learn from the actual lecture and (b) retain that information better when they are eventually tested.

**Weekly Learning Journal (40 points):** Part of the difficulty inherent in a statistics course is that a great deal of information is covered each week. To help you consolidate your knowledge on a regular basis, you are expected to submit *weekly* learning journal entries for 10 of the weeks of class (your choice which 10). Your task with each of these entries is to provide a summary in your own words of the key topics covered by the assigned readings and in-class lectures for that particular week. Your journal entries do not have to be in essay form (bulleted lists are acceptable), but you need to provide sufficient detail in each entry of what you are learning each week. We will discuss more details about this recurring assignment in class.

**Practice assignments (60 points):** Working with statistics is arguably the best way to really learn statistics. Toward this end, you will have frequent assignments (to complete in and out of class) based on topics covered in the readings and class discussions. Full credit on these assignments can be earned by completely responding to all parts of all questions (the specifics will differ by assignment, so pay attention when each assignment is made). Failing to submit an assignment by the assigned due date will earn you a 0 for that assignment. Each assignment is scored as a percentage of the points possible for that assignment. At the end of the semester I will drop your lowest assignment score and multiply the average of your remaining assignment scores by 60 points.

**Chapter quizzes (75 points):** They are called "LearningCurve" quizzes and you can find them online within the LaunchPad system under the Chapter Review section of each week's materials. You can access this system via this link: <http://www.macmillanhighered.com/launchpad/corty2e/582520> (also available in our UTC Learn site). These weekly adaptive quizzes will help you to learn the material for each week. The goal each week is to earn 600 points. Answering questions correctly earns you points; missing questions loses points. The questions are tailored to your knowledge level as you work through each quiz.

**Examinations (80 points; two exams, each worth 40 points):** All exams are based on the material leading up to them -- this means that they are all cumulative. Exam questions will come from what I present in class and what you read in your text and study in your study guide. They will be a combination of multiple choice and problem solving type questions. The best way to prepare for these exams is to read and complete all homework assignments on time and to the best of your ability, attend all classes, ask lots of questions, take good notes, and leave enough time to study before each exam. I will try to leave some time open for review sessions prior to each exam. I will also do whatever I can to provide additional assistance to all of you outside of class as necessary so that you get the opportunity to really learn this material. If you know in advance that you will have to miss one of the scheduled exams, *make sure to let me know immediately and well before the exam*. Otherwise you could end up earning 0 points for that particular exam (and this *will hurt your final grade*). Make-up exams will only be permitted if the absence is excused and supporting documentation (e.g., a doctor's note) is provided. The make-up will be scheduled as soon as possible and at my convenience.

**Extra Credit (up to 6 points total extra credit):** Periodically you may have the opportunity to earn extra credit by completing an in-class quiz or participating in a brief research study. Your primary opportunities to earn extra credit for this course will come through the psychology department's SONA system. Information about registering and working within this system will be provided in class.

**CLASS PARTICIPATION/ATTENDANCE POLICY:** Learning about statistics requires effort and interest. I will do my best to clearly present and explain information, but learning is much more fun when students like you bring questions and stay engaged in class. Come to each class with your questions and some recollection of the assigned readings (along with your text and note-taking materials). Participation in class is much easier when you are actually present for each class meeting and when you have completed the assigned readings in advance of class. **To encourage your attendance and participation, you will lose 1 point for every class meeting in which you do not participate in some way.** Attending every class meeting will ensure you have done your best to learn the material and prepare for all course quizzes and examinations. If you must miss a class, it is your

responsibility to let me know ahead of time when possible. You will then be expected to check with at least two classmates about what you missed in class to ensure your notes for the missed class are as complete as possible.

**LATE ASSIGNMENT SUBMISSION/MAKE-UP POLICY:** Assignments not submitted on time will earn a failing grade. Late assignments will not be accepted without pre-approval from Dr. C.

**REQUIRED TEXTBOOK/RESOURCES:**

- 1) **Corty, E. W. (2014). *Using and Interpreting Statistics* (2<sup>nd</sup> ed.) New York, NY: Worth Publishers.**  
*A discounted version of this text has been packaged with a discounted access card so you can use the online study materials and assignments that will be assigned throughout the semester. If you purchase the book elsewhere you will need to purchase your LaunchPad access separately (price is \$64.99). You can do that via this link: <http://bit.ly/1tSR4Ne>*
- 2) **A dedicated notebook + folder/binder for this class**  
*It is critical that you stay organized. You will need to take notes each class to stay on top of the material.*
- 3) **A calculator that allows you to compute the square root and perform all basic mathematical functions; a calculator with basic scientific functions should suffice.**  
*Solar/light-powered versions are ideal so your batteries do not quit on you in the middle of an assignment or exam. Some smartphone apps may also work.*
- 4) **Access to a computer with reliable internet connection, web browser, and Microsoft Excel.**  
*Most assignments must be completed using this program, which is available in any UTC computer lab. You can also gain very inexpensive access to Excel through Microsoft's Office 365 University program (<http://office.microsoft.com/en-us/university/>). All assignments will be submitted electronically, following instructions provided in class. When working with Excel, you may also find the following book to be a helpful resource (it is recommended, but not required): Jackson, S. L. (2013). *A concise guide to statistical analyses using Excel®, SPSS®, and the TI-84 calculator*. Belmont: Wadsworth. I recommend this text for its step-by-step help that may come in handy when working on assignments.*

**COMMUNICATION:** To enhance student services, the University uses your UTC email address for all communications. Please check your UTC email on a regular basis. If you have problems with accessing your UTC email account, contact the Call Center at 423/425-4000. Course-related communications will also be transmitted via e-mail and through our UTC Learn site; make sure to check both frequently.

**ACCOMMODATION STATEMENT:** If you are a student with a disability (e.g. physical, learning, psychiatric, vision, hearing, etc.) and think that you might need special assistance or a special accommodation in this class or any other class, call the Disability Resource Center (DRC) at 425-4006 or come by the office, 102 Frist Hall.

**COUNSELING CENTER STATEMENT:** If you find that personal problems, career indecision, study and time management difficulties, etc. are adversely impacting your successful progress at UTC, please contact the Counseling and Career Planning Center at 425-4438.

**COURSE SCHEDULE/TOPICAL OUTLINE:** Included as an appendix to this syllabus (so keep reading).

**TEACHING/LEARNING STRATEGIES:** This course is taught with a mix of lecture, presentation, and in-class group discussions. A significant amount of learning also occurs through students' own reading, writing, and self-exploration of the course topics and materials.

**HONOR CODE PLEDGE:** As a student in this course, you are expected to adhere to the following (from the UTC Student Handbook):

*I pledge that I will neither give nor receive unauthorized aid on any test or assignment. I understand that plagiarism constitutes a serious instance of unauthorized aid. I further pledge that I exert every effort to ensure that the Honor Code is upheld by others and that I will actively support the establishment and continuance of a campus-wide climate of honor and integrity.*

Some papers and other written assignments in this class will be submitted through UTC Learn's text-matching software (SafeAssign) for review of originality and intellectual integrity. When you submit these papers online, you agree to have your paper included in the institutional repository of digital papers. If the results of the review indicate academic dishonesty, disciplinary action may be taken against you (the student) as outlined in the UTC Student Handbook.

**COURSE URL:** <http://www.utc.edu/learn> -- use your UTCID and password to access

**COMPUTER REQUIREMENTS:** Internet access, UTC Learn, word processing and spreadsheet software (preferably Microsoft Office software, as it is the most flexible and functional for our purposes in this class).

**TENTATIVE COURSE SCHEDULE**  
(any updates will be announced in class)

Dates		Topics	Chapter(s) to read
Week 1	Aug	19 Course Intro <ul style="list-style-type: none"> <li>• <a href="http://macmillanhighered.com/catalog/demo/fdoc/students">http://macmillanhighered.com/catalog/demo/fdoc/students</a></li> <li>• <a href="http://www.macmillanhighered.com/launchpad/corty2e/582520">http://www.macmillanhighered.com/launchpad/corty2e/582520</a></li> <li>• SONA registration</li> </ul>	
		21 Math & Measurement Review	1
Week 2	Aug	26 28 Frequencies and Visual Presentations of Data	2
Week 3	Sept	2 4 Central Tendency & Variability/Dispersion	3
Week 4	Sept	9 Normal Curve & Standard Scores	4
		11 Probability	5
Week 5	Sept	16 Inferential Theory	6
		18 One-sample $t$	7
Week 6	Sept	23 Independent samples $t$	8
		25	
Week 7	Sept Oct	30 Paired samples $t$	9
		2 <b>Exam 1 Review</b>	
Week 8	Oct	7 <b>Exam 1</b>	
		9 Between subjects ANOVA	10
Week 9	Oct	14 No class – Dr C out of town	
		16 Repeated measures ANOVA	11
Week 10	Oct	21 No class – Fall break	
		23 Factorial ANOVA	12
Week 11	Oct	28 Correlation	13
		30	
Week 12	Nov	4 Regression	14
		6	
Week 13	Nov	11 Nonparametric Statistics	15
Week 14	Nov	18	
		20 <i>Catchup week</i>	
Week 15	Nov	25 Wrap-up + <b>Exam 2 Review</b>	16
		27 No class - Thanksgiving	
Dec 4, 1 - 3 pm		<b>Exam 2</b>	