Lecture:	TTh – TBA	Room:	TBA

Instructor:	Patrick Bolger, PhD	Office:	Psychology 225
Email/Phone:	pbolger@tamu.edu / 458-1122	Office Hours:	Fridays, 1:30-3:15 pm

Office Hours appointments (click this on eCampus):
https://calendar.google.com/calendar/selfsched?sstoken=UUlWS2p3UkFDZzlHfGRlZmF1bHR8ZDY0ZDExODdmN2U0NDcwN2IxNjMyNTdkNDk5Yzc3YWE

Course Description: This is an introductory graduate course in data analysis, tailored specifically for Industrial/Organizational Psychology. The main focus during both semesters will be on how most problems in statistics can be seen as cases of linear modeling. A strong foundation in this perspective will prepare you to see the similarities (instead of the differences) among all the statistical tests that you might encounter in the future (or have already encountered). There will be an emphasis in this course on both a conceptual understanding and the application of statistics through software. There will be some math, but not that much. In addition to learning conceptual issues, this course involves many practical homework assignments that will give you hands-on experience, facilitating your understanding of the statistical software package R. Along the way, however, I will also introduce you to Excel (the more advanced stuff) and the commercial software program SAS.

Learning outcomes:
This course has the following specific learning outcomes. At the conclusion of the course, you should have the following:

1. An excellent understanding of descriptive and inferential statistics (this will be measured by all components of the course)
2. An understanding of how these statistics mesh with particular research designs (this will be measured on exams)
3. The ability to read and understand standard statistical presentations in psychology (this will be measured on exams)
4. The ability to conduct analyses of variance (ANOVAs) using R and SAS, including both testing for compliance with assumptions and interpreting the results (this will be measured on homework assignments)
5. The ability to use Microsoft Excel (or a close alternative like OpenOffice Calc) for data entry, organization, manipulation, and data export to more powerful statistical software programs (this will be measured on homework assignments)
6. Novice ability to use special tools in R to extend data visualization and data reporting beyond what statistical software packages normally do (e.g., RMarkdown, Shiny, Bookdown)

Required Materials:

- Laptop: You'll need a laptop for this class (Mac, Windows, or Linux).
- **Required texts:**
  - Paid
    - Field, A., Miles, J., & Field, Z. (2012). *Discovering statistics using R*. Thousand Oaks, CA: SAGE Publications, Inc.
    - Der, G., & Everitt, B. S. (2015). *Essential statistics using SAS University Edition*. Cary, NC: SAS Institute, Inc.

- Available for "free"
  - Gaubatz, K. T. (2015). *A survivor's guide to R: An introduction for the uninitiated and unnerved*. Thousand Oaks, CA: SAGE Publications, Inc. (available free online through Texas A&M Libraries: https://methods-sagepub-com.srv-proxy2.library.tamu.edu/book/a-survivors-guide-to-r?fromsearch=true)
  - Wickham, H., & Grolemund, G. (2017). *R for data science: Import, tidy, transform, visualize, and model data*. Sebastapol, CA: O'Reilly Media, Inc. (but available online for free at https://r4ds.had.co.nz/

- Additional course materials will be uploaded on to eCampus throughout the semester.

Software:

- We will use mostly R in this class, and for that, you'll need to download and install two separate programs:
  - R (https://www.r-project.org/). When you download it, you're supposed to choose a mirror of the main server in Austria. You usually choose the closest one, which in our case is Revolution Analytics in Dallas.
  - RStudio (https://www.rstudio.com/). This download isn't necessary, per se, but there is virtually no one left who doesn't use it (or one of its sisters IDEs, like Jupyter Notebook, or RCommander). An IDE (Integrated Development Environment) is a computer program that makes writing computer scripts easier. RStudio is by far the most popular IDE for R. It makes using R far easier, as well as adding other features.
  - We will also use SAS sometimes, as this is commercial software. Something like it may be available at larger companies you may work for. This is available for free to university students in one of four ways: 1) SAS University Edition (using virtualization software on your computer; interact through a web browser); 2) SAS On Demand for Academics (on the Cloud); 3) through Texas A&M's VOAL; and 4) the MS Windows version installed on your computer with CDs available for free from the Bookstore (https://sell.tamu.edu/Personal/Student_Software_List/SAS_Student_Software_License.php). I highly suggest that you use 1 or 2 above since the Der and Everitt text refers to that particular SAS environment.

Course Website: The TAMU eCampus website (http://ecampus.tamu.edu) will be used for this course. Outlines for note taking and additional materials will be uploaded to eCampus, as well as test grades.

Class Preparation: In order to get the most out of your class attendance, you should read the assigned material prior to the lecture. The lectures are designed to place topics in perspective, clarify difficult issues, and present extensions of concepts in the books and articles. *No attempt is made to cover all the topics in the articles and books. However, you are responsible for reading all the assigned material.* If you do not, you will not be able to take full advantage of the class.

Blackboard & Email: Course materials (assignments, handouts, additional readings, etc.) will be accessed via eCampus https://tamu.blackboard.com/. Students will also receive class announcement via blackboard and their university email accounts. I recommended you use your university email account for all activity related to this class. Using other email accounts runs the risk of the message you send to your colleagues or professors ending up blocked by their spam filtering program.

How you will be evaluated:
Homework: There will also be 13 homework assignments (75 points each; except the last, which will be worth 100) that focus on specific topics of the class. This totals to 1,000 points. They will all involve programming in either R or SAS or both.

Evaluation: Each homework assignment will be evaluated on the following: 1) whether reasonable answers to the main questions posed in the homework were given; 2) whether the script (syntax) works well; and 3) whether the script is elegant vs. clunky. Each assignment loses 10% for every day that it is late.

Calculating your final grade: Add all your test and assignment points to calculate your total number of points, see below for corresponding course grade:

A = 895-1000	**B = 795-894.99**	**C = 695-794.99**	**D = 595-694.99**	**F = below 595**

If you have a grading dispute, this must be addressed **within one week of the posted grade**. I will enforce this policy because of the following: 1) issues can be more accurately identified and resolved when the assignment is fresh in both my mind and yours; and 2) the end of the semester gets very busy and we will not have time to reassess and change grades that were earned in an earlier portion of the semester. So please check the eCampus grade book regularly so you are up to date on your grades.

What to do if you are having difficulties
Make-Up policy: Missing an assignment due date is a serious event. University rules are clear, and are detailed in University rule #7 (see http://student-rules.tamu.edu/rule07). This "Attendance Policy" will be strictly adhered to in situations in which a student is absent when tests are given. Read section 7.1.6.2 closely. In cases like this, I will require both documents (7.1.6.2a and 7.1.6.2b)

General difficulty: If you are having difficulties understanding the material or with performance on the tests, come and see me right away. Such difficulties cannot be remedied if you wait until the last minute to deal with them. Likewise, any student with a disability or special circumstances that may limit his or her ability to perform to full potential in this course should contact me as soon as possible. If you need help with note-taking, reading comprehension, or writing skills please call Student Counseling Service (https://scs.tamu.edu/) or the Academic Success Center (http://successcenter.tamu.edu/). Again, please come talk with me immediately if you become aware that you are seriously falling behind and/or may not be able to meet a deadline or are regularly missing class. In extreme circumstances a student can request an 'incomplete. However, an "incomplete" course grade will not be assigned except in extremely unusual circumstances.

Additional University and Class Policies
In general, please be respectful of others so that together we create a good learning environment. That means:

1. Please arrive to class on time. Late arrivals interrupt the concentration of both other students and the instructor. Also, class attendance is mandatory, but attendance will neither be recorded nor calculated in the grade. But if you miss class, do not ask me anything about the course material that day. If you miss class, you can obtain lecture notes from a classmate. So, it would be a good idea to identify someone in class who you can depend on in case of absence. The

outline of the lectures can be found on eCampus. Finally, all cell phones must be turned off or set to vibrate only in class.

2. I would love for you to participate in class. But, please **no side conversation** during class. If you do carry on a conversation during class, you will be asked to stop or leave the classroom as we are a large class and such behavior can be extremely distracting and disrespectful to your fellow classmates.

Course Outline (TBA)

Note: changes to the course outline may be made if needed. So please stay informed as changes made to the syllabus will be announced during class time and/or on eCampus.

Americans with Disabilities Act: The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit http://disability.tamu.edu.

More on Learning Outcomes: Texas A&M University has identified student-learning outcomes that describe our institutional commitment to your educational goals. These include the ability to demonstrate critical thinking, effective communication, and social, cultural, and global competence. Please see:
http://provost.tamu.edu/essentials/pdfs/copy_of_UndergraduateLearningOutcomesFinal.pdf

Diversity: It is my intent that ALL students, regardless of backgrounds or perspectives, are well served by this course. I view the diversity that different students bring to the class as a resource, strength, and benefit to the ideals of a university education. Therefore, our classroom is a designated safe zone of respect, including toward diversity in gender, sexual orientation, religion, disability, age, socio-economic status, ethnicity, race, culture, political views, etc. Please let me know if you have suggestions about how to improve the value of diversity in this course; your comments will be welcomed.

Statement on Limits to Confidentiality: Texas A&M University, the College of Liberal Arts, and the Department of Psychological and Brain Sciences are committed to fostering a learning environment that is safe and productive for all. University policies and federal and state laws provide guidance for achieving such an environment. Although class materials are generally considered confidential pursuant to student record policies and laws, University employees — including instructors — cannot maintain confidentiality when it conflicts with their responsibility to report certain issues that jeopardize the health and safety of our community. As the instructor, I must report the following information to other University offices if you share it with me, even if you do not want the disclosed information to be shared:

- Allegations of sexual assault, sexual discrimination, or sexual harassment when they involve TAMU students, faculty, or staff
- Credible threats of harm to oneself, to others, or to university property

These reports may trigger contact from a campus official who will want to talk with you about the incident that you have shared. In many cases, it will be your decision whether or not you wish to speak with that individual. If you would like to talk about these events in a more confidential setting, you are encouraged to make an appointment with the Student Counseling Service (https://scs.tamu.edu/). Students and faculty can report concerning, non-emergency behavior at http://tellsomebody.tamu.edu.

The Personalized Instructor Course Appraisal System (PICA): The Department of Psychology will use PICA for all course evaluations starting in Fall of 2016. This move is environmentally responsible (no paper forms) and will facilitate faster and more informative evaluations. FAQ about PICA for students: https://pica.tamu.edu/pica/SystemFAQ.aspx

Academic Integrity Statement and Policy:

"AGGIE HONOR CODE

'An Aggie does not lie, cheat, or steal or tolerate those who do.'

Upon accepting admission to Texas A&M University, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning, and to follow the philosophy and rules of the Honor System. Students will be required to state their commitment on examinations, research papers, and other academic work.

Ignorance of the rules does not exclude any member of the TAMU community from the requirements or the processes of the Honor System. For additional information, please visit http://student-rules.tamu.edu/aggiecode".

Plagiarism – Faculty Senate Addendum
"The handouts used in this course are copyrighted. By 'handouts', I mean all material generated for this class, which include but are not limited to syllabi, quizzes, exams, lab problems, in-class materials, review sheets, and additional problem sets. Because these materials are copyrighted, you do not have the right to copy the handouts, unless I expressly grant permission to do so.

As commonly defined, plagiarism consists of passing off as one's own ideas, words, writings, etc., which belong to another. In accordance with this definition, you are committing plagiarism if you copy the work of another person and turn it in as your own, even if you should have the permission of that person. Plagiarism is one of the worst academic sins, for the plagiarist destroys the trust among colleagues without which research cannot be safely communicated.

If you have any questions regarding plagiarism, please consult the latest issue of the Texas A&M University Student Rules, under the section 'Scholastic Dishonesty'."