

Syllabus

AE 6721: Evaluation of Human Integrated Systems

Instructor: Dr. Karen Feigh

Location: ESM G8

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Office Hours: Tuesdays @ 4:30 or email me for an appointment!

References: Except for the textbooks references will be available on Tsquare: <https://t-square.gatech.edu>

These books are not required, but they are highly recommended!

- Tabachnick, Barbara G. and Fidell, Linda S. Experimental Designs Using ANOVA. Duxbury Press ISBN-10: 0534405142 ISBN-13: 978-0534405144
- Siegel, S. & Castellan, N. J. (1988) Non parametric Statics for the Behavioral Sciences (2nd ed.). McGraw-Hill.
- Warner, Rebecca M. (2008) Applied Statistics: From Bivariate through Multivariate Techniques. Sage Publishing. ISBN-10: 0761927727

Course Goals: Provide students with the knowledge and skills to:

- Interpret commonly cited statistical measures in research papers.
- Operationalize research questions
- Identify and execute the appropriate research method to obtain the data needed to answer research questions including ethnographic, survey, interview and experimental techniques.
- Identify and conduct commonly used data analysis techniques in human subject investigations beyond those found in introductory statistics courses, such as
 - Friedman's ANOVA of Ranks
 - Logistic Regression
 - Wilcoxon signed-ranks test
 - Kruskal Wallis test
- Plan and conduct an ethical and effective human-subject experiment

Prerequisites: None, but an understanding of basic ANOVA or Regression techniques such as ISyE 6739 or 3739 is helpful.

Pedagogy: This course is a graduate level course on the measurement and evaluation of human integrated systems. It is a project-based course. The content will be initially presented in lectures and students will be given multiple opportunities to master and practice the skills presented in the form of short assignments most of which are in support of the overall project.

Project: Students will conduct projects in groups of 2-3 individuals. The results of the experiment are to be represented as either a Technical Report (25+ pages) or a conference quality publication (following the format of either AIAA, IEEE, or HFES) (5-15pages). *Note: you may not publish the results of any study unless you obtain IRB approval of your protocol prior to subject recruitment and data collection, which may not be possible in class due to time constraints. Consider this a great opportunity to run a pilot study.*

The Evaluation of some Human Integrated System including data analysis

- Determine the system you wish to evaluate
- Determine the research questions and objectives
- Determine the most appropriate evaluation method
- Design the evaluation instrument (must result in some quantitative data)
- Design the data analysis
- Conduct the evaluation
- Conduct the data analysis
- Report your results

Students are encouraged to select a project relevant to their own research. Students should take charge of their own project; they are urged to schedule meetings with the instructor throughout the term to solidify and confirm the project's focus and to clarify any feedback received. Project milestones are included in the course timeline.

Grades:

5%	Quiz on Research & Measurement
10%	IRB (2%-Training, 8% IRB Submission & Acceptance)
15%	Research Question & Data Collection Plan
15%	Experimental Packet
15%	Data Analysis Plan
30%	Report/Conference Paper
10%	Presentations (5% Proposal, 5%Final)

Note that intermediate deadlines are set for the Introduction/Background & Method section for your benefit. The instructor will review and mark drafts given at these times, but no grade will be given. Only a final grade of the entire paper will be given – so you can continue to make improvements throughout the course.

Legalese

Georgia Tech has an honor code which applies to this class, just as every other class. All Quizzes are to be individual work; all projects are to be original work. Group projects are considered to be equal effort by all team members. Group members will be asked to assess each other and grades will be influenced by these assessments.

Plagiarizing is not condoned. Please cite all material to which you do not own the intellectual property. When in doubt cite it.