Florida State University Statistical Consulting Center Annual Report

2016-2017

Overview

Florida State University's Statistical Consulting Center is provided to assist students, faculty, and staff at FSU with their research activities. The Consulting Center is staffed by graduate students within the Department of Statistics and provides free service to members of the FSU community. Upon request, clients from outside of the FSU community are given at least one hour of consultation. The Center provides walk-in hours to assist clients on a first-come first-serve basis. Those in need of more assistance or those who cannot make it to the scheduled walk-hours are also able to schedule appointments to see consultants. Services include but are not limited to:

- Translating research questions and hypotheses into precise statistical terms
- Designing sampling Procedures
- Choosing appropriate statistical methods
- Interpreting computer output
- Referrals to other statistical help
- Assistance learning various statistical packages
- Aid in data formatting, processing, etc.
- The Statistical Consulting Center does not perform actual analysis

Walk-in hours for the 2016-2017 academic year were held on Monday-Thursday afternoons in Strozier Library Consultation Room A. Additional appointments were set up to accommodate both the consultant's and clients specific scheduling needs. The majority of appointments were held in person during walk-in hours, though some questions were answered through email.

Summary of Business Activity

The consulting center was staffed by the graduate students Xiaoming Dong, Vladimir Geneus, Bradley Hupf, Albert Steppi, Hoang Tran, and Libo Wang. Consultants met with approximately two clients per week on average, for a total of around 40-50 consultations over the course of the two semesters. Students averaged slightly over two appointments per semester outside of walk-in hours. Demand was fairly consistent over the course of each semester, though there was often high demand at the start of the semester, a brief lull in the middle, and increasingly high demand into the end of the semester.

Consulting Appointments and Walk-ins

The majority of clients were graduate students seeking assistance with the quantitative aspects of their research problems, with many faculty members, and some ambitious undergraduates also asking for such assistance. Many undergraduate students sent emails requesting tutoring for their statistics classes. Most were referred to the Statistics Department to find proper tutoring. The most frequent statistical ideas employed were t-tests, ANOVA, basic linear regression, logistic regression, Chi-square, factor analysis, sample size calculations, and survey data.

Clients were encouraged to provide a detailed summary of their problem prior to their meetings. This helped allow consultants have time to prepare. Many of the techniques used in other departments are unfamiliar to statistics graduate students though simple enough to understand when seen. Most clients came in with little knowledge of the statistical software they were using. This software included SAS, SPSS, R, and Excel; SPSS being the most commonly used one. Consultants often had quickly become comfortable with software they were unfamiliar with.

Statistical services have been offered to clients from departments including but not limited to those below.

Departments

Criminology and Criminal Justice
Nutrition Science
Communications
Statistics
Psychology
Mechanical Engineering
Economics
Modern Languages and Linguistics
Interior Architecture and Design
Education
Public Administration and Policy
Business
Educational Psychology and Learning Systems

Typical Cases

A Masters Student in Nutrition Science studying the outcomes of Gastroesophogeal Band Surgery. She was interested in studying if there is a correlation between the amount of weight lost by a patient and the number of complications suffered in the period after surgery. Other variables were recorded for each patient. She had a very small sample size and was advised to use a paired t-test to test for the statistical significance of the patient's weight loss. She was advised to use a Spearman R test to test for the correlation between weight loss and the number of complications. This was due to her observation that the number of complications was very far from normally distributed.

A faculty member in the department of educational psychology and learning systems studying whether interactions between domestic and international students improve the well-being of students from each group. He recruited a number of foreign and international students and gave each of them seven surveys related to wellbeing. Some of the students were grouped into pairs, one domestic and one international, while others were not grouped in this way. After some length of time the surveys were given to the students again. He was interested in coping with strong correlations he found between the surveys and other issues that made his choice of statistical test unsuitable. He was unsure if it was Ok to simply exclude some of the surveys which were found to be correlated after the fact. His sample size was also small. He was eventually advised to carry out a paired difference t-test adjusted for multiple comparisons, which still has reasonable power in small sample sizes.

A doctoral candidate from the College of Business seeking assistance with web crawling. He had access to a database of financial information from both US and international companies through the University library and was interested in scraping a list of suppliers for a particular firm from the database. There were systems in place to prevent such access of which he was unaware. He was advised to immediately stop such activities due to the possibility they violate the Computer Fraud and Abuse Act. He was advised to instead contact the maintainers of the database to see if there was another way to access this data.

Reflections

The Statistical Consulting Center continues to prepare graduate teaching assistants from the Statistics Department for professional collaboration scenarios, provides teamwork experience in interdisciplinary settings, and gives the opportunity to apply knowledge from their statistical coursework. Interpersonal skills are also developed in working with a client to ascertain their needs and understand what deliverables are required. It allows a gain in knowledge from other disciplines which provides insights into the application of statistics from a different perspective.