

Florida State University Statistical Consulting Center

Annual Report 2014-2015

Overview

The Statistical Consulting Center at Florida State University is a research assistance facility for the students, faculty, and staff at FSU. The Center is a function of the graduate program within the Department of Statistics at Florida State University. The Statistical Consulting Center is a free service for members of the FSU community. When requested, clients from outside the FSU community are given at least a one-hour consultation. The Statistical Consulting Center also holds walk-in hours to assist clients on a first-come first-serve basis. Services included but are not limited to:

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

Walk-in hours for the 2014-2015 academic year were held on Monday-Thursday afternoons in Strozier Library Consultation Room A. Additional appointments were planned to accommodate both the consultant's and the clients' specific scheduling needs. The majority of appointments were held in person during walk-in hours. Occasionally the consultant would answer questions via email or have a phone appointment if the client was not in town.

Summary of Business Activities

Graduate students Jiwon Lee, Hoang Tran, Qiaoya Zhang, Quisheng Chen, Edward Johnson, and Kevin McCarty served as the consultants for the consulting center this year. Jiwon Lee, Hoang Tran, and Kevin McCarty were primary consultants for the Fall '14 semester and Qiaoya Zhang, Quisheng Chen, and Edward Johnson were added to the team for the Spring '15 semester.

On average, consultants had 2-3 appointments each week, for a total of about 50-60 appointments over the course of the two semesters. The demand was relatively consistent across the months, with slight increases at the beginning and end of the semester, and close to important dates such as submission deadlines for research proposals or dissertations.

Consulting Appointments and Walk-ins

The majority of clients this year were graduate students seeking assistance for the quantitative aspect of their research/dissertations. Quite a few undergraduate students came in requesting tutoring, the majority of who were referenced to the Statistics Department in order to find a proper tutor. There was a fairly even split between appointments scheduled and walk-in clients between the semesters. The most frequent statistical ideas used were t-tests, ANOVA, basic linear regression, logistic regression, Chi-square, factor analysis, sample size calculations, and survey data analysis. Historically, a typical consultation would consist of a single one hour meeting with little advance knowledge of the clients' needs and follow up regarding their outcomes. We encouraged clients to provide a detail summary of their problem prior to meeting but it usually worked out nicer when they describe the problem during the meeting. The majority of programs clients came in with little knowledge of their statistical software, which included SAS, SPSS, R, and excel. With SPSS being one of the main software used by clients, consultants quickly learned how to use and interpret the software and its output. Now, a typical consultation process is as follows:

1. The client provides a brief summary of their problem via email prior to meeting
2. An 30-60 minutes are spent in scheduled, in-person consulting.
3. The meeting is followed by additional follow-up via email.
4. Additional meetings are scheduled.

Over time, we are proud to say that we have been able to provide statistical services for clients from various departments of the University community as indicated below:

Departments:

Anthropology
Art Education
Biology
Business
Chemistry
Communication Disorders
Criminal Justice
Dance
Education
Educational Psychology and Learning Systems Department
Engineering
Exercise Science
Family and Child Sciences
Family and Consumer Sciences
Fashion Design
FSU Libraries
General Education
Geography
Instructional Systems
Internal Affairs
Mathematics Education
Meteorology

Modern Languages
Music
Music Therapy
Nursing
Nutrition/ Exercise Science
Oceanography
Physics
Psychology
Public Administration
Retail Merchandising
Social Work
Sociology
Sports Management
Statistics
SUS

Typical Cases

One student from the Marriage and Family Therapy program desired assistance on working with a secondary dataset in terms of data functionality, hypotheses, and correct methods for survey and questionnaire analysis with multiple measures. He was working with large amounts of (gigabytes) and poorly coded data. He was helped with data cleanup, different analysis methods, and an explanation of statistically significant vs. practically significant.

A postdoc from the Geography program desired guidance on statistical analysis for a research project using tree and root samples gathered all the way in Hawaii. She was provided with help on multiple software programs using tests including PCA, cluster analysis, and GLM. She had further questions on differences between sums of squares types and was provided with resources and explanations for them. Her consultations are ongoing at this point.

One student in the Business program came in with inquiries on path analysis and structural equation modeling (SEM). Consultants were able to research path analysis and SEM and give a basic understanding in respect to his project. He further inquired about polynomial regression so he was given explanations for polynomial regression and provided with polynomial regression resources including a few articles that were similar to his research problem.

An undergraduate student requested help covering statistical areas including interaction terms, moderators/mediators, and data interpretation in the social science setting. Some of these concepts were briefly discussed with the client but because this was a coursework tutoring scenario, she was referred to the tutoring services in the Statistics Department.

One student from the Counseling and School Psychology program working remotely from the university desired assistance on her dissertation prospectus. She needed help with two issues, how to determine the number of participants in her study, and how to appropriately examine variables such

as age and gender. She was provided with article on current going rates of samples sizes for similar studies to address her first inquiry as well as an article on using a statistical program, G-power, to calculate sample size. After further explanation of the purpose of the intended study she was informed of proper methods that would work for her research questions including paired t-tests and regression.

One student from the Family and Child Sciences program desired assistance with the major points of ANCOVA for her thesis so that she could properly write her data analysis plan. She was provided with materials covering ANCOVA including examples and explanations. After she gave further background information on her two hypotheses and being explained her specific inquiries, she was given suggestions on different models to run for the hypotheses that varied depending on hypothesis and dependent variables.

Reflections

Working in the Statistical Consulting Center has been a very interesting and excellent way to prepare Department of Statistics graduate students for consulting-based careers, practice interdisciplinary collaboration, and apply knowledge gained from the department. It has been a great way to see how statistical methods are applied to a variety of situations and helping clients succeed in their research and dissertations is very rewarding. It also is a great way to continue gaining knowledge that isn't taught in the statistics department. Learning SPSS usage has paid off immensely, as it appears to be the most commonly used software across all other departments.

Our consultants would like to sincerely thank the faculty and staff in the FSU Department of Statistics, especially Dr. Steven Ramsier, for continued guidance and support of the consulting center.