

**Robert Fowler**

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### **Overview**

The Statistical Consulting Center at Florida State University is a research assistance facility for the students, faculty, and staff at FSU. Occasionally, clients from outside of FSU call and are given a one-time, one-hour appointment. The Statistical Consulting Center is a free service for members of the FSU community. Services included but are not limited to:

Translating hypotheses into statistical terms

Designing sampling procedures

Choosing appropriate statistical methods

Interpreting computer output

Phrasing statistical results

Referrals to other statistical help.

The Statistical Consulting Center generally does not perform actual analyses.

Appointments for the Spring Semester of 2003 were scheduled from 11:00 a.m. 1:00 p.m. on Monday, Wednesday and Friday. Alternative arrangements are made when clients are unavailable during the scheduled hours. During the Spring semester of 2003 everyone who requested assistance was seen by the Statistical Consulting Center within 9 business days of his or her initial call for assistance.

### **Summary of Business Activities**

The Statistical Consulting Center changed management on 13 January 2003. Feiming Chen managed the Statistical Consulting Center prior to January 2003. He saw 56 clients from May 2002 to December 2002. Historically Consulting Center clients have been approximately 85% graduate students, 10% faculty, and 5% undergraduates and clients from outside FSU.

The Statistical Consulting Center saw 26 individuals from 13 January 2003 to 1 May 2003 and handled a half-dozen brief questions by phone or email. The 26 clients were comprised of 4 faculty members, 2 clients from outside FSU, 17 graduates students working on their theses or dissertations, and 3 graduate students working on publishable research related to their dissertation topic. Additionally, two undergraduates accompanied one of the faculty members had questions related to the faculty member's research.

The clients from the Spring of 2003 came from across the University from a variety of departments including:

Anthropology

Biology

Chemistry

Educational Psychology and Learning Systems Department

Family and Children Sciences

Family and Consumer Sciences

Mathematics Education

Oceanography

Physical Education

Physics

Sports Management and Recreation Management

Textiles and Consumer Sciences

Clients also included a doctor from the Tallahassee area and a recent Ph.D. graduate now working in Miami.

Generally each client was seen twice. Many of the questions involved designing and understanding appropriate sampling designs and analysis methods. These issues included propagation of errors, reliability, validity, sample size, and power. More than half the clients had data and need assistance in either choosing the appropriate methods or interpreting results. There were many questions about the operation of SPSS, and some other software packages. Many of these questions I was able to answer. For questions regarding packages I was unfamiliar with or for highly specific questions with software that I am familiar with several clients were referred to Betty Brown, the computational applications specialist at ACNS.

Analyses were performed for two professors to better help them understand the methods being suggested. In one of these cases the analysis was performed for Dr. James in Biology, a long-term collaborator of Dr. Meeter. The analysis for Dr. James confirmed the analysis done by Dr. Chuck McCulloch, from the University of California at San Francisco. The second analysis was done for Dr. Behzad Mortazavi in Oceanography. Dr. Mortazavi will be acknowledging the Statistical Consulting Center in an article that has now been approved for publication.

Clients of the Statistical Consulting Center have a large variety of statistical backgrounds. Some clients were unfamiliar with the basic terminology and concepts of statistics. Other clients had a substantial understanding of statistical concepts and techniques and required assistance on topics that required me to learn additional background information in order to assist them.

## **Typical Cases**

The cases during the Spring of 2003 varied from highly technical to clients satisfied after a three-minute phone conversation and a one-sentence answer. The typical case involved two appointments for a combined meeting time of between three to four hours. Most clients had either already designed a sampling device and they were in the process of collecting data or had already collected data. Most want to insure they had collected appropriate data and obtain guidance on what functions to use in SPSS to do an appropriate analysis. Generally after the first meeting there were several issues for the client to work out before running the analysis. After running the analysis clients return to help understand the computer output and translate the statistical results into language that worked for their thesis or dissertation.

A case in point is that of a recent Ph.D. graduate. She is working with doctors in Miami to determine if there is a difference in the pain thresholds between various types of migraine headache patients. In our first meeting we discussed the possible problems of using 16 factors in a regression analysis type of problem. Additionally, she had data from both sides of each patient (left and right) and wanted to compare the left and right sides when the hypotheses the doctors were interested in involve comparing the pain on the same side of the body as the headache and the opposite side. We discussed ways to bring her analysis into agreement with the ideas the doctors were interested in. Two weeks later she returned with her new analysis and we walked through the consequences of the output. When we concluded our meeting she was comfortable that she could correctly explain the results of her analysis to the doctors.

## **Reflections**

Working in the Statistical Consulting Center has been an exciting experience. The clients bring real problems without the niceties of textbook problems. Every client has taught me something new, usually about a field of study I barely knew existed before the meeting. I look forward to continuing the service that the Statistical Consulting Center provides for the FSU community.

I would like to acknowledge Dr. Lin, Dr. Song, and Dr. Zahn for their help with several of the cases. I would also like to thank Virginia Hellman, Pam McGhee, Evangelous Robinson, Delenie Garrido, James Stricherz, and Catherine Lingar. They have kept the operations of the Statistical Consulting Center running smoothly.