Syllabus

San Diego State University, Fall 2014

Stat 795: Practical Statistical Consulting

Instructor: Dr. Joseph Barr

Office: GMCS 514.

Email: barr.jr@gmail.com

Hours: Fridays 3-4 or by appointment.

Fridays 1:00 – 2:50

Room: GMCS-328

Intended audience. Graduate students in statistics. Graduate students in other fields are welcome.

Prerequisite: Basic statistical coursework. Knowledge of statistical distributions, parametric estimation, hypothesis testing, regression, ANOVA, LOGIT and the R system.

Philosophy. To visit paradigms and patterns you will likely encounter during your career. To expose you to technologies and techniques useful in a statistical career.

Presentations. Teaching is a good way to learn, therefore I will assign you to make presentations in standard Power Point format.

TOPICS:

- The Unix environment
- Shell scripts
- Python
- Advanced Excel
- The SAS system
- SQL (vial PROC SQL)
- R on Unix
- Statistical reporting
- Practical Regression (OLS) and the LOGIT
- Survival Analysis with Cox Hazard Rate regression
- Time Series: ARIMA
- High dimensionality outlier detection
- Additional topics are likely
- Projects from various clients
**Homework:** You will be assigned projects, presentations and reports. You will work with a client to deliver solutions.

**Grades:** No tests. A portfolio of projects, presentations and reports. Grades will be based on portfolio, in-class presentations and engagement with clients.

**Goals:** You will learn how to present statistical reports, to tell the story behind the numbers, make recommendations. You will also learn to work with standard tools.

**Expectations:** I will expect self-motivation, curiosity, enterprise, to code, to present results, to be bold in trying out new ideas; to form hypotheses (generically speaking) and test them (again, generically - I don’t mean p-value). I encourage you to form small work groups, to motivate each another, to learn from one another. However, portfolio is the work of an individual, but you should give attribute and acknowledge the team for contributions.