

# Stat 684



## Statistical Collaboration – Practice & Process

Professional Internship



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## Consulting

### ✓ PRINCIPLES

1

**Statistics vs. Statistical Science**

2

**Art vs Science**

3

**Consultant vs. Collaborator**

## Topics

✓ PRINCIPLES

1

**Consulting Environment - Jobs**

2

**Consulting as a Process**

3

**The Interview**

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**HW Assignment**  
**Due before Next Class**

**Statistical Consulting  
Environment Today**



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# Question 1

Describe the charter or purpose of the statistical consulting section in your own words.

<http://community.amstat.org/cnsl/home>

Why is this section important to the profession?

# Charter

1. Foster the role of the statistical consultant.
2. Regularly communicate information on statistical consulting through newsletters and/or other appropriate publications.
3. Sponsor sessions at Association meetings and in other settings to encourage developing statistical consulting.
4. Coordinate efforts with other Sections of the Association and with other societies and organizations.
5. Encourage improved training of statistical consultants and promote effective innovative training methods.
6. Study the organizational structure of the training of consultants and the placement of consultants within academic or non-academic organizations.
7. Promote the use of ethical standards in statistical consulting.
8. Promote the professional stature of consultants and statistical scientists, in general.

## Question 2

Describe what you think is the most important principal that statisticians need to observe in their profession. Justify your opinion

## Question 3

Review Committee on Professional Ethics:

<http://community.amstat.org/ethics/home>

Review and discuss the current ethical guidelines found on eCampus.



## Question 4

Review Committee on Privacy and  
Confidentiality Website:

<http://community.amstat.org/cpc/home>

Review and discuss the current privacy and confidentiality laws and human subjects protection requirements.

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## Consulting Environment

Statistical Consulting  
Environment Today



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# Research Team Environment

- Pharmaceutical/Medical Research
  - Must understand FDA/NIH terminology
  - Preclinical vs Clinical Studies
    - Preclinical – animals or laboratory
      - in vivo vs in vitro
    - Clinical (human subjects)
      - Phase I: Establish initial safety information ( $n < 100$ )
      - Phase II: Effective dosage ( $n > 300$ )
      - Phase III: Safety, Efficacy and Optimum Dosage (Reviewed)

# Research Team Environment (Continued)

- Telecommunications – Electronics
  - Large data
  - Research, Development & Business Groups
  - Cutting edge technology

# Business Environment (Independent Consultants)

- Doc in Box
  - Short timeframe
  - Quick answers
- Small Projects (examples)
  - Survey Design
  - Marketing
  - Expert Witness

# Government Environment

- Census, FDA, EPA, FBI, CIA, etc.
- Small Projects (examples)
  - Contract Review
  - Data Collection
  - Survey Design

# University Environment

- University medical schools
  - Biostatistics Center or Department
  - Teaching and Consulting

# Stat 684



## Statistical Collaboration Process

### Statistical Collaboration Process Description



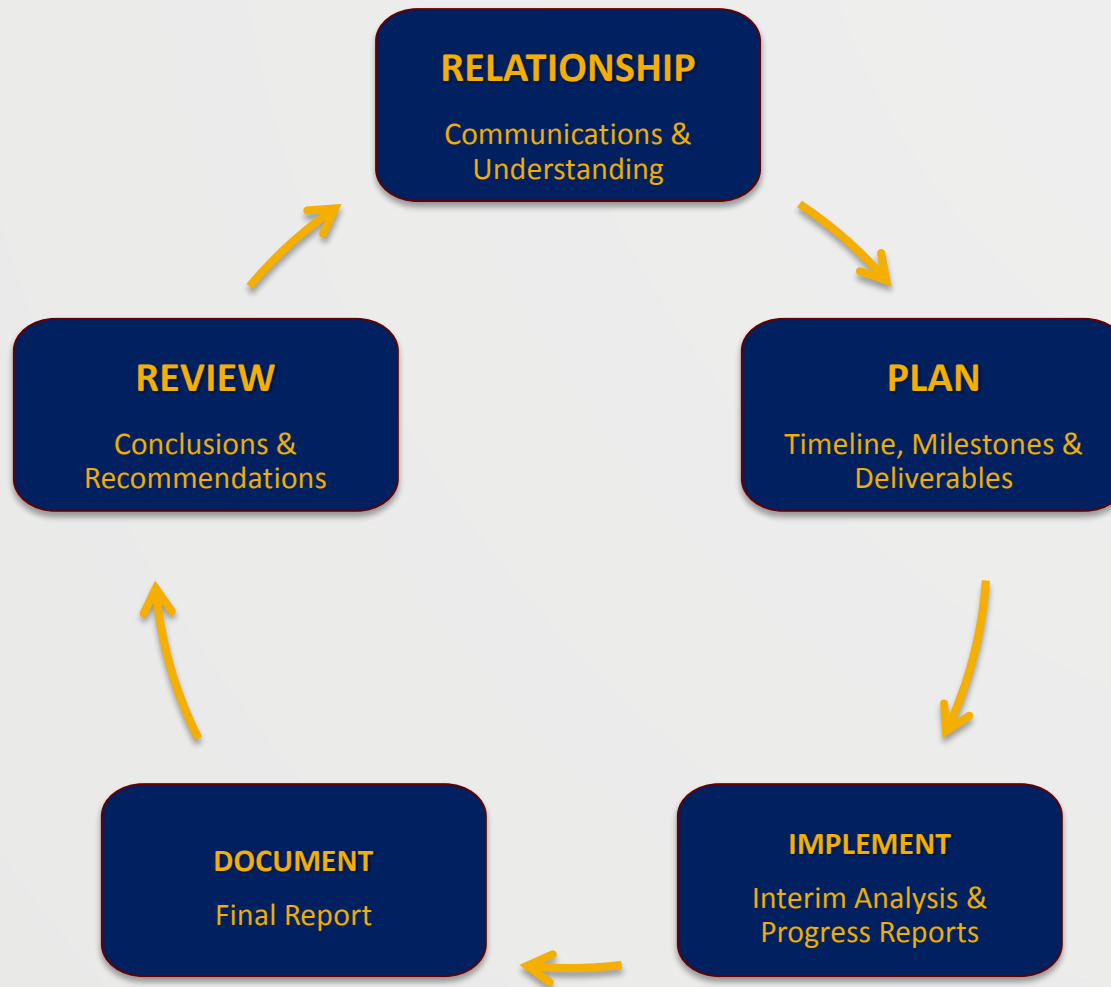
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# Introduction

- Statistical Consulting as a Process
- Four Pillars of Statistical Consulting
  - Statistics
  - Communications
  - Relationships
  - Teamwork

# Collaboration as a Process



# The 1<sup>st</sup> Interview - Considerations

- Attitude – your role?
- Prepare?
- Location?
- Dress?
- Outcomes?

# Client Relationship

- Understand Client's environment
- Understand Client's Issues
- Understand Client's Goals
- Understand Client's Deadlines
- Discuss Communications
- Discuss YOUR Goals and Needs

# The Interview Environment

- Brainstorm
- New Client or Returning?
- Location
- Timing
- Dress & Attitude

# General Interview Structure

- Understand Client's Major Goals
- Understand Client's Needs
- Understand & Express Your Needs
- Start Planning
- Jointly Develop & Communicate  
"To Do" List
- Develop Next Meeting's Agenda

# Understand Client's Goals

- Project Research or Business Objectives
  - What is the client trying to “prove?”
- Project Importance and Visibility
  - Who is funding this work and why?
- Project Deadline
  - When would you like to accomplish these things?

# Key Project Questions

- What do you hope to accomplish with this project?
- How is this project supported?
- Who is the project leader and who else is on the project team?
- How important, in your view, is statistics to accomplishing your project goals?
- Do you need a statistician on the project team?



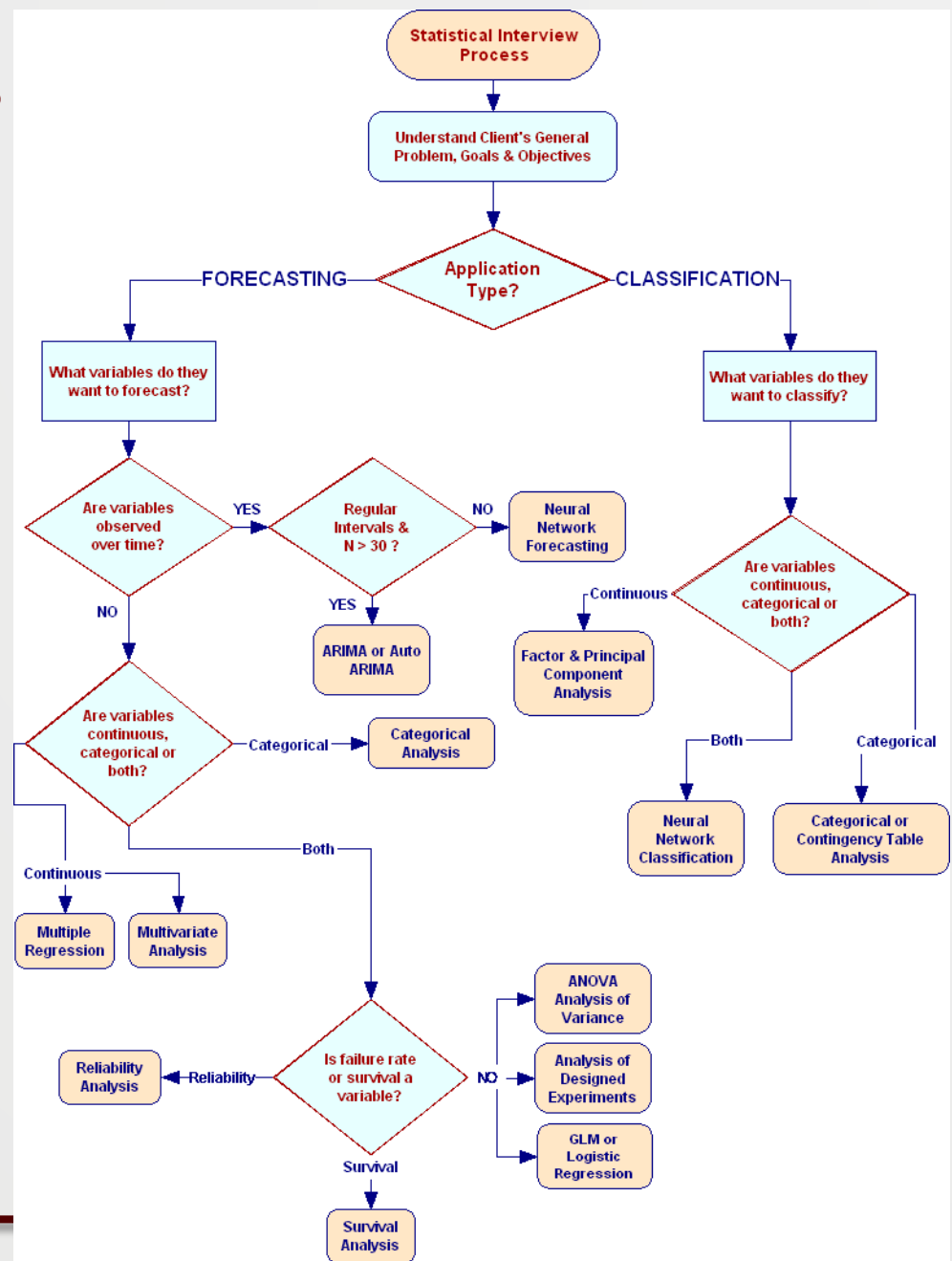
# Understand Client's Needs

- Data
  - Confidentiality Human Subjects-  
<http://www.hhs.gov/ohrp/>
  - Confidentiality – Client  
<http://www.amstat.org/committees/commdetails.cfm?txtComm=CCNPRO02>
  - Existing Data
  - Planned Data Collection Activities
  - Is the Client Open to Advice on Future Data Collection Activities?

# Understand Client's Needs (continued)

- Previous Statistical Analyses
  - Client Analyses
  - Other Journals & Reports
- Your Role
  - Analysis
  - Data College Design
  - Reporting
  - Presentations

# Understand Client's Statistical Needs



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## The Interview

### The Initial Client Interview



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# Expressing Your Needs

- Communicate importance & contribution of statistics to this Project
- Express your role expectations
  - Team member
  - Data access & confidentiality
- Know your needs and communicate them
  - Money?
  - Recognition
- Explore unrecognized contributions of team statistician

# Directed Interview Approach

- Do Not Lead the Client Towards Your Solution
- Ask Questions & Listen – Don't Lecture
- Avoid Answering Questions Until You Know the Clients Goals
- Understand What is Important and What is not – Simple Solutions are Preferred
- Take Careful Notes
- Feedback to Client Your Interpretation
- Develop “To Do” List for Client & Yourself
- Document, Document & Document

# Interview Do's and Don'ts

- Use a Directed Approach to the Statistical Interview
- Do Not Lead the Client Towards Your Solution
- Ask Questions & Listen – Don't Lecture
- Avoid Answering Questions Until You Know the Clients Goals
- Understand What is Important and What is not
- Simple Solutions are Better
- Use Popular Solutions When Possible
- Plan, Monitor & Document

# Initial Work Plan

- Developed from 1<sup>st</sup> Meeting
- Develop a “to do” list – Tasks, Responsible Individual, Timeframe
- Schedule Next Meeting