WINONA STATE UNIVERSITY

COLLEGE OF SCIENCE AND ENGINEERING

DEPARTMENT OF MATHEMATICS AND STATISTICS

**Course Outline – STAT 370**

**Title:** Statistical Consulting and Communication

**Number of Credits:** 3

**Catalog Description:** In this course, the student will gain an understanding of the nature of applied consulting and the scientific philosophies and skills required to be successful as a statistical consultant. This course will continue to develop the student's oral and written communication skills that are necessary for communicating often technical statistical content with non-statisticians. Students will provide statistical consulting services to the university as time permits. Prerequisites: DSCI 210, STAT 360 or STAT 365. Offered Yearly.

**Possible Textbooks:**

* Derr, Janice. *Statistical Consulting: A Guide to Effective Communication*. Duxbury Press (ISBN-13: 978-053436228)

**Topics Covered:**

1. Introduction to Statistical Consulting and Communication (2 weeks)
   1. What is Statistical Consulting?
   2. Do you need a statistical consultant?
   3. Roles of a Statistical Consultant
   4. How to involve a statistical consultant?
2. The Ideal Statistical Consultant and Satisfied Client (2.5 weeks)
   1. The Statistician's Perspective
   2. The Client's Expectations
   3. Aligning Expectations
   4. Resources
3. The First Consulting Session (1.5 weeks)
   1. The impact of non-verbal communication
   2. Creating good first impressions across cultures
   3. Introducing the consultant to the problem
   4. What do you expect from the statistician?
   5. Asking Good Questions
      1. avoiding common errors
      2. ii. identify what you need to find out
      3. develop an effective strategy for gathering necessary information
   6. Time lines and any financial considerations for the project
4. The Remaining Sessions (1/2 week)
   1. Effective communication of technical results to non-statisticians
   2. Long term consulting projects
5. Dealing with Difficult Situations (1 week)
   1. The importance of communication
   2. Conflict resolution
   3. Ethical issues in statistical consulting
6. Oral Presentations (1/2 week)
   1. Identifying your audience and purpose
   2. Methods for presenting technical statistical content to non-statisticians
7. Case Studies (8 weeks)

A significant portion of time in this class will be devoted to completing several statistical consulting projects. Each student will be required to complete several of these statistical consulting projects. Instructors shall solicit projects from the university or surrounding community and if projects are not available instructors may choose to use mock consulting projects. Students will be required to submit final written reports and give oral presentations for each consulting project

**Listing of Sections to be Covered:** Not applicable to this course, since there is no standard textbook. Chosen sections of any text should correspond to the topics outlined above.

**Remarks:** None.

**Approximate Pace of Coverage:** Not Applicable.

**Method of Instruction:** Methods may include lecture, case studies, discussion, group work, and mock clients.

**Evaluation Procedure:** Assessments will vary in style and may homework assignments, and consulting projects.

**Minnesota Transfer Curriculum:** Oral Intensive

* Earn significant course credit through extemporaneous oral presentations.
* Understand the features and types of speaking in their disciplines.
* Adapt their speaking to field-specific audiences.
* Receive appropriate feedback from teachers and peers, including suggestions for improvement.
* Make use of technologies used for research and speaking in their fields.
* Learn the conventions of evidence, format, usage, and documentation in their fields.

**MnSCU Learning Outcomes:**

* This course will promote a student’s ability to develop a personal philosophy of consulting from the viewpoint of an applied statistician.
* This course will promote a student’s ability to gain an understanding of the issues (e.g. ethical, data privacy, authorship) often faced by a consulting statistician.
* This course will promote a student’s ability to expand upon their existing communication and management skills.

**Possible Computer Software:**

* JMP
* R
* SAS

**Last Revised:** Spring 2011 by the Statistics Subgroup.