STAT 370: Statistical Consulting and Communications

Instructor: Chris Malone
Office: Gildemeister 124C
Web: course1.winona.edu/cmalone
Email: cmalone@winona.edu
Office Hours: TBA


Course Description:
In this course, you 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 your oral and written communication skills that are necessary for communicating technical statistical content with non-statisticians. Students will provide statistical consulting services to the university as time permits.

Course Objectives:
This course will not be a course dealing with the analysis of data, but instead will focus on how to be an effective consulting statistician. The assignments and/or projects in this course will develop skills in: Oral Communication, Written Communication, and Collaboration and Teamwork.
- As the semester progresses, you should begin to develop a personal philosophy of consulting from the viewpoint of an applied statistician.
- You will be required to expand upon your existing communication skills as these skills are important when interacting with non-statisticians, eliciting information, and understanding a client’s objectives.
- You may be asked to assist clients in determining an appropriate statistical analysis, the interpretation of their results, and the writing of their reports/summaries.
- Statisticians often face ethical issues when providing statistical consulting. You will gain an understanding of the ethical issues often faced by statisticians and how to best proceed with their project.

Homework/Projects:
There will be several homework/projects assigned throughout the semester. Some of these assignments can be done in groups and others will be individual assignments. Late homework assignments will not be accepted after they are returned. In-class assignments may be given at any time. In-class assignments cannot be made-up. There will be no exams in this class. Instead we will have significant projects that will involve a written and oral component.

Grades:
Your grade will be determined by your performance on your assignments and/or projects. Your final grade will be determined using the following percentages: greater than 90%, A; 80% - 90%, B; 70% - 80%, C; 60% - 70%, D; below 60%, F.
Course Outline:

I. Introduction to Statistical Consulting and Communication
   a. What is Statistical Consulting?
   b. Do you need a statistical consultant?
   c. Roles of a Statistical Consultant
   d. How to involve a statistical consultant?

II. The Ideal Statistical Consultant and Satisfied Client
   a. The Statistician’s Perspective
   b. The Client’s Expectations
   c. Aligning Expectations
   d. Resources

III. The First Consulting Session
   a. The impact of non-verbal communication
   b. Creating good first impressions across cultures
   c. Introducing the consultant to the problem
   d. What do you expect from the statistician?
   e. Asking Good Questions
      i. Avoiding common errors
      ii. Identify what you need to find out
      iii. Develop an effective strategy for gathering necessary information
   f. Time lines and any financial considerations for the project

IV. The Remaining Sessions
   a. Effective communication of technical results to non-statisticians
   b. Long term consulting projects

V. Dealing with Difficult Situations
   a. The importance of communication
   b. Conflict resolution
   c. Ethical issues in statistical consulting

VI. Oral Presentations
   a. Identifying your audience and purpose
   b. Methods for presenting technical statistical content to non-statisticians

VII. Case Studies (approximately half of the semester)
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.
**Academic Integrity Policy:**

The WSU Undergraduate Catalog contains a full listing of policies and procedures pertaining to this issue: [http://www.winona.edu/coursecatalog/AcademicPolicies.asp](http://www.winona.edu/coursecatalog/AcademicPolicies.asp)

Note that both copying another student’s work and allowing someone to copy your work are clear violations of WSU’s Academic Integrity Policy. If there is reasonable evidence of copying another individual’s or group’s work, it will be construed as an act of plagiarism. The first occurrence of cheating will result in a score of zero on that specific homework assignment or exam portion; the second occurrence will result in failure of the course.