

STAT 465: Statistical Communication and Consulting: Spring 2006
California Polytechnic State University, San Luis Obispo
Course Syllabus

Class Meeting: MW from 4:10 pm – 6:00 pm in Building 2, Room 206.

<u>Professors:</u>	Heather Smith	John Walker
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<u>Office Hours:</u>	MTW 1:00pm-1:50pm in 25-107G	MWTh 10:10-11am in 25-113
	Th 12:10pm-1:50pm in 25-107G	T 11:10am-12pm in 25-113

Prerequisites: Successful completion of at least one STAT 400 level course and senior standing.

Texts: Derr, Janice. *Statistical Consulting: A Guide to Effective Communication*.

<u>Grading:</u>	Written Project Summaries	20%
	Project Quizzes	10%
	Project Presentation	5 or 10%
	Midterm Exam	15%
	In Class Final Exam	15%
	Final Project and Presentation	20 or 25%
	Class Participation	10%

Break points for A, B, C, and D will be approximately 90%, 80%, 70%, and 60% respectively.

Attendance: Attendance is a critical part of this course. Any absence that is not approved in advance by the professors will result in a 1/2 letter grade penalty. In case of illness, you must notify us as soon as possible (preferably before class) by e-mail or phone. Approved absences will not be penalized, but the reason for the absence must be serious and compelling in order for it to be approved.

Videorecording: Presentations and practice consulting sessions during the course will be recorded. These recordings are the property of the Statistics Department. Some of these recordings will be shown in class by the professors. They may also be used outside of class by the professors for program and course improvement and other educational purposes. Between classes the recordings will be available for review. At times, you will be asked to select portions of your recordings to be viewed by the entire class. Outside of class, you have permission to view only your own recorded sessions and the recording of any group consulting sessions. If you wish to view another student's recordings, you must receive that person's permission.

Respect for Others: You are in this class to learn about statistical communication and consulting. This implies that no one in the class can already do these things perfectly (including the professors). A large part of the class involves leading mock consulting sessions and giving presentations. Everyone in the class will make some mistakes during these presentations, and most of us are uncomfortable about having these mistakes recorded and reviewed by others. We cannot learn without making mistakes. Please be respectful and supportive of your fellow students and the professors during the class.

Group Work vs. Individual Work: The three consulting projects are group work. You must meet with and work with your group on these projects. Your group members will evaluate your participation and effort (not just attendance) at group meetings, and these evaluations can lower your grade if you do not participate fully in the project. On these projects, you may collaborate only with members of your own group. **There should be no communication between groups about the project.** Any questions about the project, should be directed to the professors, not other students. All other assignments in the class (unless specifically noted) are individual work. **For individual work, you are not allowed to share your answers to the assignment with anyone else in the class unless specifically directed to do so by the professors.**

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Use of Knowledge from Previous Statistics Courses: STAT 465 is a **capstone** course. This means that the course requires you to use material from earlier classes and to integrate the knowledge from separate courses to solve consulting problems. You will be required to review material from your previous statistics courses **on your own**. There will be short reviews of a few technical topics during class, but there will almost certainly be projects requiring knowledge of previous material not reviewed in this course. Some group projects may require knowledge from upper-level elective statistics courses that you may not have taken. In this case, you must work with your group to learn enough basic knowledge about the topic to effectively participate in the group. (This models real-life consulting projects where not all members of the team have the same knowledge or experience, but all must participate in some effective way to meet the project needs.)

Project Grading: Each project will be graded for an initial quiz, a written summary of the analysis, and for the project presentation. Each student will take the project quizzes separately. Students on the same project team will work together on the project report. Every member of the project team will receive a common grade on the written report. Only the presenter for that project will receive the presentation grade. (Each person in the class will have the opportunity to present one project.) The written project grade will be adjusted based on group participation. (See below.)

Group Participation: The written project summary is group work. You are expected to meet with your group to do the analysis and write-up the results. After the written report has been submitted, each group member will evaluate the **participation and effort** of the other group members (not themselves). **Each student's final score on the written report will be adjusted based on these effort scores.** There is a special form on Blackboard for you to download, print, and submit your evaluations. **Your evaluations of other students are confidential.** You will not receive any credit for a project until you submit the effort scores for your project partners.

Individual Projects: Under extraordinary circumstances (such as illness or family emergency), it may not be possible for you to work with a group on a project. In this case, you must contact the professors **immediately** and ask for permission to compete the project individually. If permission is given, it may be necessary to schedule your project presentation outside of normal class time.

Midterm Exam: The midterm exam is worth 15% of the final grade. The exam is tentatively scheduled for **Wednesday, May 10.**

Final Exam: The final exam is worth 15% of the final grade. The final exam is on **Thursday, June 8 from 4:10-7pm** in the Studio classroom (2-206).

Final Project: In addition to the in-class final exam, there will be an **individual** consulting project due at the beginning of finals week. This project will be introduced in class on Wednesday, May 24. Each student will do the analysis alone, and will sign up for a time slot on either Monday or Tuesday of finals week to present his or her results to the professors/clients. Final project grades will be based on the written results and the presentation, which will be recorded. The project is worth 20-25% of the final grade. If the presentation portion of your final project grade is higher than your presentation from the group project during the quarter, the project grade will count 25%, and the earlier presentation will count only 5%. Otherwise, the final project will count 20% and the earlier presentation will count 10%.

Class Participation: Ten percent of the final grade will be based on class participation. Class participation includes anything that contributes to (or detracts from) the learning objectives for the course. Examples of good class participation include successful completion of all class activities and assignments, and thoughtful involvement in class discussions. Examples of poor class participation include lack of preparation for class assignments, habitually late arrival to class, and inappropriate classroom behavior. The class participation grade will be assigned by the professors at the end of the quarter.

Work produced by students as part of this course may be used for educational purposes: It is understood that registration for and continued enrollment in this course constitute permission by the student to use his or her work for educational purposes. In compliance with the federal Family Educational Rights and Privacy Act, works in all media produced by students as part of their course participation at Cal Poly may be used for educational purposes, provided that the course syllabus makes clear that such use may occur.

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STAT 465 blends theoretical and practical aspects of statistical consulting. Students learn how to:

- Conduct effective consulting sessions,
- Identify and conduct appropriate statistical analyses,
- Present oral arguments and written reports, and
- Work collaboratively to solve problems.

Because many of our students go on to careers in statistical consulting, our Department believes that it is important that we adequately prepare students for this task. The American Statistical Association, industry representatives, and other experts in the field of statistical consulting have strongly recommended that undergraduate statistics majors be provided with specific instruction in statistical communication and consulting. We believe that this course provides our students the opportunity to learn about and develop the skills they will need to be effective consultants.

Learning Outcomes for STAT 465: By the end of the quarter each student should be able to:

1. Understand the characteristics of an effective consultant, a satisfied client, and a successful consulting session.
2. Plan and implement a consulting session.
3. Facilitate effective communication with a client.
4. Ask appropriate questions in a consulting session.
5. Deal effectively with a variety of consulting situations.
6. Be aware of issues involving statistical ethics.
7. Find appropriate technical solutions to consulting problems, both individually and as part of a team.
8. Effectively present oral and written arguments.
9. Utilize professional publications and resources in statistics and other related fields.

Course Activities Designed to Help Achieve These Outcomes:

1. Lectures and reading on technical statistical topics important in statistical consulting.
2. Lectures and reading on communication topics important in statistical consulting. Communication theories by Zahn and Derr are included.
3. Research in the field of statistical consulting obtained through published articles, textbooks, and interviews with practicing statistical consultants.
4. Multiple mock consulting sessions that will be recorded and reviewed.
5. Team-based project work including the development of statistical analyses and the development of written and oral presentations for different contexts. The presentations will be recorded and reviewed.
6. An individual consulting project including the development of a statistical analysis and the development of a written and oral presentation. The presentation will be recorded and reviewed.