Stat 599 Autumn 2020 Syllabus

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Course Schedule/Registration
Registration for Consulting this quarter includes 6 students from Statistics. The consulting instructor assembles a schedule of consulting appointments after the students are identified and before the quarter begins. Students must inform the instructor of their other course and RA/TA scheduling constraints. Each student is required to attend 3 60-minute consulting sessions (50 minutes with a client followed by 10 minute consultants’ wrap-up) and a group meeting each week. The group meeting happens on Thursdays, 9:30-11:20 a.m. via Zoom. Consulting sessions will also meet via Zoom. The instructor will make every effort to consolidate an individual student’s consulting schedule to minimize the number of days the student has consulting classes. (See below under student requirements.)

Course Description
This course provides training for graduate students in Statistics on the statistical aspects of research problems arising in the University community. Students, initially under close supervision of a faculty member, participate in discussions with investigators engaged in quantitative research.

Course Learning Objectives
At the conclusion of this course, students should be able to:

1. Understand key features of a consulting session and be able to:
   • Describe typical types of dialogue during the beginning, middle, and end of a session
   • Suggest several strategies to make a client comfortable
   • Describe approaches to eliciting useful information from a client
   • Describe strategies for wrapping up a session

2. Lead a consulting session with a researcher demonstrating the ability to:
   • Outline for the client the structure of the session
   • Query the client on the background of his/her problem
   • Query the client on his/her scientific goals, and be able to identify, and help formulate, the key questions that the client wishes to have addressed
• Identify the level of technical knowledge of a client, and demonstrate communication skills aimed at providing solutions to the client within these levels of technical knowledge
• Provide solution(s) to the client questions, or identify areas in need of further exploration before a solution can be provided
• Synthesize information into a summary and a ‘to-do’ list for the end of any session

3. Summarize a consulting session demonstrating the ability to:

• Verbally summarize a client problem and describe the statistical issues to a group of statisticians at consulting group meetings
• Write a clear and concise summary of the client problem and statistical issues and solutions as a resource for future consultants who may be asked to continue with a client in future quarters

4. Write a clear and in-depth report of a consulting problem in language that is accessible to the client and that contains the following elements:

• Summary of the client’s overall goals, scientific aims, questions and statistical issues
• Summary of the current stage of research
• Description of the client’s design issues and/or data, highlighting key features
• Suggested approach or methodology addressing the client’s analysis and/or design questions
• Summary and interpretation of analyses or other work carried out to address client’s questions
• Discussion of assumptions and limitations of the approach suggested
• Reference list for technical methods and appendix of software code

Grading

Consulting is a professional activity that provides a service to the University community. Students’ dedication to, and participation in, this course have a broader impact than other courses. Student effort in consulting that falls below expectations can compromise the ability of the program to meet its professional responsibilities.

Formal grades for STAT 599 are Credit/No Credit. Students will be assessed on their interactions in consulting sessions, contributions to the weekly group meetings, appointment summaries, and the longer written consulting report. Students receive credit for the class by meeting all of the following criteria:

• Attending all assigned consulting sessions
• Improving as a consultant during the quarter
• Adequately summarizing all assigned sessions
• Contributing to group discussion of clients at Thursday group meetings
• Delivering a 15-min presentation of the consulting project that will result in a written report
Completing a written consulting report judged by the instructor to be acceptable to share with the client

**Religious Accommodations**

Washington state law requires that UW develop a policy for accommodation of student absences or significant hardship due to reasons of faith or conscience, or for organized religious activities. The UW’s policy, including more information about how to request an accommodation, is available at Faculty Syllabus Guidelines and Resources. Accommodations must be requested within the first two weeks of this course using the Religious Accommodations Request form available at [https://registrar.washington.edu/students/religious-accommodations-request/](https://registrar.washington.edu/students/religious-accommodations-request/) (Links to an external site.).

**Student Requirements and Responsibilities:**

1. Participate in three consulting appointments each week.

All consulting appointments are scheduled in advance, and clients are required to submit a problem description form ([Links to an external site.](https://washington.zoom.us/j/93282039625)) in advance of the scheduled appointment hour. These problem descriptions are listed in Canvas under Pages as Discussions. The appointments for the current quarter will be posted online on the [UW Statistical Consulting Service calendar](https://washington.zoom.us/j/93282039625) (Links to an external site.). Students are expected to read these problem descriptions prior to the appointment time. When appropriate, students are expected to have investigated necessary statistical issues based on these descriptions prior to the appointment time.

*This quarter, Autumn 2020, all Thursday Group Meetings will take place online via Zoom. Click on the following link to access the Zoom information:* 

[https://washington.zoom.us/j/93282039625](https://washington.zoom.us/j/93282039625) (Links to an external site.)

*All consulting appointments will also take place online via Zoom. You can access the corresponding Zoom meeting for each appointment on its Discussion page.*

Our policy is that clients must be scheduled at least a day in advance as we wish to have the opportunity to read problem descriptions prior to appointments. Thus, our Schedulers have been instructed not to schedule clients to appointments on the same day unless they have approval from the instructor to do so. This means that if the appointment calendar does not show a scheduled appointment for particular appointment times by 5 PM the previous day, consultants can expect that they will not have to show up for those unscheduled appointment slots. However, in the interest of not wasting appointment slots, we do make exceptions to this rule, so students should check the appointment calendar on the day (morning) of your scheduled appointment times.

Almost all clients submit their problem descriptions electronically. The Scheduler (sconsult@stat.washington.edu) will generally post copies of these problem descriptions in Canvas as a Discussion. To access a particular Discussion, select Pages from the menu, select the
Statistics page, then select the specific Discussion. Sometimes there is a lot of information to read (e.g., a technical paper or a thesis proposal); sometimes there is very little.

**Note:** When you see a problem description with little information for one of your sessions and it is clear that the client could provide more information (possibly including references or even a dataset), take the initiative to e-mail the client to ask for more information prior to the consulting session. Remember to cc the other consultants (including the Instructor AND Scheduler) so the client doesn’t get multiple uncoordinated requests. All correspondence with the client should be documented in the client’s Discussion.

**Schedule of Appointments:** The schedule of appointments is kept on a Google calendar, [UW Statistical Consulting Service Calendar (Links to an external site.)](#). Postings on the calendar provide direct links to each client's Discussion, which include the problem description and client-provided files.

Three students and one faculty consulting supervisor will attend most appointments. *It is critical that you show up on time for all appointments.* One of the students will generally be assigned (in advance) responsibility for leading the consulting session following guidelines provided during the first group meeting. During the first one or two weeks of the quarter, the senior (faculty) consultant will take the responsibility for welcoming the client and initiating/leading the discussion, but these responsibilities will shift to the lead student consultant in later weeks. *At no time, early or late in the quarter, does anyone sit quietly as a spectator.*

If you cannot make an appointment, arrange for someone else to cover for you. Contact the instructor in advance if you must exchange a session with another student consultant due to travel or other commitments. This is particularly important in the context of follow-up appointments with clients you have met with previously.

Do not worry about being able to propose solutions to problems. The most important part of the consultation is gaining an understanding of what was done and what the scientific problem is. Everyone can contribute to the discussion and questioning that leads to this understanding.

**1.1 Student Responsibilities during the sessions**

Student responsibilities during the consulting sessions are to:

1. Arrive on time and having completed advance preparation.
2. Behave professionally during the session.
3. Take good notes, starting with recording of the client demographic information specified on the problem description form (client name, status, department, etc.).
4. Participate in the discussion, ask questions, offer recommendations.
5. Use all types of feedback to learn to become a better consultant.
6. Ensure that the consultants get copies of any materials that may prove useful for our records, for future discussion, and for possible incorporation in written reports. This may include copies of plots and/or other statistical summaries and analyses, and in some cases, copies of the client’s data.

**1.2 Student Responsibilities after the sessions**
Session Summaries:

One of the students attending the consultation will be assigned the responsibility for filing a problem summary form into the electronic discussion board. This will usually be the responsibility of the student assigned to direct the consulting appointment. The appointment summary should be filled out immediately following the consultation (or as soon as possible), not sometime during the ensuing week. These key items on the summary should be clearly flagged:

1. **Administrative details**: date, time, and full names of all participants in the consulting meeting;
2. **Research problem**: a brief summary of the overall goal, scientific background, specific aims, and scientific/statistical questions;
3. **What happened**: what was discussed during the consulting session;
4. **Follow-up**: what is to be done next, by the client, and by the consultants.

The appointment summary serves two purposes: (1) it is a permanent record of the session, and (2) it will help prepare consultants in the future if the client returns for one or more follow-up appointments, even if the consultants at the follow-up appointment are not the same consultants. *Appointment summaries may be sent to the clients after they are approved by the faculty supervisor; summaries should be drafted with this in mind.*

*All appointment summaries are recorded on Canvas under Discussions.* For every client, the Schedulers create a discussion thread with the available problem description. You will post your appointment summary or add follow-up comments in this thread. Note that other types of documents that the client might provide, such as Word documents, pdf and Excel files, can also be posted by attaching a file.

### 1.3 Client follow-up interactions between sessions

For many clients there is some type of follow-up after a session. Examples of reasons for follow-up include:

- Confirmation of information discussed during the consulting session,
- Responding to follow-up questions from the client (typically asked by email),
- Delivery of results of analyses for the client, and
- Sharing with the client insights gained during the consultants’ group meeting.

The consultant responsible for an individual client - and thus the consultant responsible for ensuring the follow-up occurs - is the student who wrote the first appointment summary for that client during the current quarter.

2. Participate in the weekly group meetings.

The weekly group meeting is Thursdays from 9:30 to 11:20 AM online via Zoom, and includes all students and the faculty supervisors. Students should not schedule any other commitments during this time slot. Group meetings may consist of brief lectures/discussions on topics relevant to statistical consulting, discussions of recent client meetings and consulting problems, and/or student presentations.
The consulting lecture/discussion part of the group meeting over the first few weeks will cover an introduction to consulting, approaches to structuring and conducting a consulting session, and issues or methods of communication with consulting clients. After the first few weeks, the content of the lecture part of the group meeting will be organized on an “as needed” basis. For example, we may have a presentation on sample size calculations. Depending on the consulting clients and problems of the current quarter, there may also be short presentations on subjects such as experimental design, sample surveys, multivariate methods, survival analysis, and/or clinical trials.

During the client discussion part of the group meeting, individual clients and problems from the past week are discussed. We call on students to present summaries of selected sessions.

- Be prepared to present to the consulting group an explanation of the research problem and summary of the consultation for any of the sessions that you were involved in. The person who filled out the appointment summary will usually be the one called on to present the consultation for discussion at the group meeting, but occasionally, e.g. if that person is absent, it might be the other student. Bring copies of your appointment summaries and any ancillary information that might be helpful in these informal presentations to the consulting group.

Many consultations result in problems for which there are no immediate solutions. One of the purposes of the group meeting is brainstorming to come up with solutions, which will be conveyed to the clients in follow-up appointment sessions or by e-mail. For unsolved problems, students may be directed by the supervising faculty member to do some reading and research. Additional purposes of the group meetings are to give students practice summarizing key features of client sessions and to give direct feedback to students.

Note: Begin any presentation with a little background including information about the client and the statement of the problem as proposed by the client. We will usually ask students to sketch key elements of the problem to help all of us visualize and understand the problem.

Note: It is important here, just as in the consulting sessions themselves, that you learn/practice asking questions to understand problems. If you don’t understand what your consulting colleague is saying in his/her presentation, ask questions! Credit for the class requires active participation in the group discussion.

3. Write one consulting report and review the reports of your co-consultants.

Each student is required to write a detailed report for one consulting client. These reports are written for the client, and thus must be appropriate for that client’s level of statistical knowledge. When a client is identified for a probable written report, communicate with the client (preferably during a consulting appointment) about the intention to write a report and ask for his/her consent. There may be some need to discuss how the client may use text and results in the report. In the (unlikely) event that a client does not want a report, another client must be chosen for a report.

Each student will prepare and deliver a brief, 15-minute presentation with slides of his/her report at a group meeting. Feedback at the oral presentation should be considered in drafting or revising reports. Before submission to the instructor, the report should be reviewed by the other student
consultant(s) who participated in the sessions with the client. The report should be revised to address the comments from other student consultants before sending to the instructor. Expect additional comments from the instructor and further revisions before the report is ready to send to the client.

4. Incorporate feedback and demonstrate improvement in skills throughout the quarter.

Course Summary: Date Details Link to other content in the course. Click any page to insert a link to that page.

This class involves a large amount of interaction, both with faculty and all kinds of clients. There is a great deal of feedback in various forms. Students are expected to reflect on their skills as consultants as they develop through the quarter, and apply feedback in order to improve their skills as the quarter progresses.