

# STAT:6220. Statistical Consulting and Communication with Data Spring, 2024

## 1 General Information

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|--------------------------|---|
| Instructor:              | Dr. Aixin Tan, aixin-tan@uiowa.edu, 259 SH.   |
| Course Format:           | By default, the course meets in person, 10:30–11:20am MWF 75 SH.<br>However, on days when we are introduced to a client, we might meet on Zoom.<br>(Note you are always free to use the classroom during class time, even for zoom meetings.) |
| Instructor Office Hours: | MWF 11:30 - 12:15 pm<br>Make additional appointments if needed.   |
| Course page:             | Announcements and course materials will be posted in ICON.  |
| Course Wiki page:        | Updates to progress on projects. Link to be announced in ICON.  |
| Department:              | Statistics and Actuarial Science, 241 SH  |
| DEO:                     | Dr. Kung-Sik Chan, 335-0712<br>kung-sik-chan@uiowa.edu  |

## 2 Course Description

One goal for this course is for students to gain some experience in applying statistical methods in the role as a statistical consultant. The intention is to have students work with a client from another discipline and/or data generated from a client, and perform an appropriate analysis. In lieu of real-time client work, case studies may also be utilized. You will draw upon the statistical methods you have learned in your courses up to this point, and you may need to expand your statistical toolbox by reading statistics journal articles, textbooks, or other resources, regarding new types of analyses.

Another important learning goal is to effectively communicate statistical ideas and analysis results orally and in writing. Students will develop their ability in crafting data-driven presentations and reports that are logically sound, persuasive, and tailored to their audience.

Additionally, students should gain knowledge of ethical practices (e.g. for human-subjects-related research).

**Resources.** There are no required textbook. A few reference books are listed below. We may also read some journal articles which will be available in ICON.

- The Elements of Data Analytic Style — A guide for people who want to analyze data by Jeff Leek.
- Communicating with Data: The Art of Writing for Data Science (1st Edition) by Deborah Nolan and Sara Stoudt (accessible through [www.lib.uiowa.edu](http://www.lib.uiowa.edu)).

**Additional Resources.** The UIowa Writing Center as well as the Rhetoric Speaking Center and Conversation Center are excellent resources.

## 3 Coursework and Grading

### 3.1 Assignments

There will be small assignments in the course that will be turned-in. The topic and structure (as well as the timing) will depend on our class-client involvement. Some possible assignments: perform an analysis on a data set and provide a report/write-up as you would give to a client, read a journal article on a new type of analysis and share your findings with the class, or respond in writing to a statistical question asked by a non-statistical client. One known assignment will be to get certified in human subjects protections (<http://hso.research.uiowa.edu>).

### 3.2 Client Work

You will be spending time on very individualized projects related to client work with individuals from around the University or the local community. You will likely work in pairs or small groups on these projects. I will attend some client meetings, but most likely not all of them. Presently, I have some clients available for our course, but if you are aware of any potential clients, please let me know.

We may often begin class with a check-in, where members of each project team describe the current status of their projects. After check-in, we may spend the remaining time discussing certain client projects in depth, or discussing ‘hypothetical’ client projects or issues. The number of projects any one student is assigned to or completes depends on the complexity of the projects and the number of clients available. Note that in addition to working on projects for which you serve as the primary consultant, learning from other students’ projects is important to broaden your scope and gain valuable experience.

I expect students to present their analyses of client work in class. If the client is available, I would also like them to come to class during the presentation. These presentations will probably be followed by questions or discussion.

I expect students to not leave any clients hanging at the end of the semester. If a project is not complete, you can at least provide a preliminary report to your client as a place for them from which to continue. Please be professional: be on-time, be clear, be courteous, etc.

### 3.3 Attendance

I expect students to be in-class for all the presentations (dates will be posted in advance), and to be at class on a regular basis. I will take attendance every time. If you must be gone for a class, especially one that involves clients, please inform me in advance of the conflict and we will discuss options for you to make-up the absence.

### 3.4 Grading

Grading is S/U. You will receive a grade of S = satisfactory only if you attend 90% of the classes, attain 70% or higher on Assignments, and attain 80% or higher on Client work.

## University Policies

Accommodations for Students with Disabilities

<https://provost.uiowa.edu/teaching-resources/course-syllabi-information#accommodations-for-students-with-disabilities>

Basic Needs and Support for Students

<https://provost.uiowa.edu/teaching-resources/course-syllabi-information#basic-needs-and-support-for-students>

Classroom Expectations <https://provost.uiowa.edu/teaching-resources/course-syllabi-information#classroom-expectations>

Exam Make-up Owing to Absence <https://opsmanual.uiowa.edu/students/absences-class#8.1>

Free Speech and Expression <https://provost.uiowa.edu/teaching-resources/course-syllabi-information#free-speech-and-expression>

Mental Health <https://provost.uiowa.edu/teaching-resources/course-syllabi-information#mental-health>

Military Service Obligations <https://opsmanual.uiowa.edu/students/absences-class#8.2>

Non-discrimination <https://provost.uiowa.edu/teaching-resources/course-syllabi-information#non-discrimination-s>

Religious Holy Days <https://opsmanual.uiowa.edu/students/absences-class#8.3>

Sexual Harassment/Misconduct and Supportive Measures

<https://provost.uiowa.edu/teaching-resources/course-syllabi-information#sexual-harassment--sexual-misconduct>

Sharing of Class Recordings <https://provost.uiowa.edu/teaching-resources/course-syllabi-information#sharing-of-class-recordings-if-appropriate>