

STA130 post-course ChatBots survey (Fall 2024)

In accordance with the University of Toronto Human Research Ethics Board review and approval of protocol #00047048 "Investigating the impact of AI-integration into a first year course in statistical reasoning and data science", this form requests consent from students to **anonymously** use their feedback and responses collected through pre- and post-course "ChatBots survey" questionnaires for the purposes of a research publication. As noted in the consent form, these responses will "be linked to course grades after the course is completed" so **anonymized** analyses of responses relative to course performance may therefore potentially be a part of possible research publications.

We again request your consent decision confirmation as part of this survey in case you have not yet given it or you wish to update it. Please note also that your consent decision may be changed at any time prior to any produced publication by updating your consent decision through the "ChatBot consent form" (<https://forms.office.com/r/Rabcpyu3U2>) where your most recent consent decision will determine the usage of your data.

We have now additionally made a protocol amendment revision request (currently awaiting review for potential approval) **to include a distinct and separate request for student consent to allow us to collect and use the text of "ChatGPT transcript history logs" along with student HW answers for the purposes of a research publication.** *This consent decision request now appears below the primary consent decision request associated with the data of the pre- and post-course "ChatBots survey" questionnaires.*

* Required

* This form will record your name, please fill your name.

STA130 ChatBot survey Consent Form (Fall 2024)

Project Title

Investigating the impact of AI-integration into a first year course in statistical reasoning and data science

Investigators

Scott Schwartz, Assistant Professor, Teaching Stream, Statistical Sciences (scott.schwartz@utoronto.ca); Kenneth Yip, Assistant Professor, Teaching Stream, Cell and Systems Biology. If you have any questions about the research study, feel free to contact your instructor listed above OR contact the Office of Research Ethics (for questions regarding participant rights) at 416-964-3273 or by email at ethics.review@utoronto.ca.

Purpose and Nature of the Study

You are invited to participate in a research study that surveys student experience and elicits student feedback regarding the explicit incorporation of AI ChatBots into STA130 (An Introduction into Statistical Reasoning and Data Science). Specific questions and instructions will be included with the two (pre- and post-course) questionnaires which comprise this study, and students are asked to answer the questionnaires as truthfully and as accurately as possible. The questionnaires will collect demographic information, student feedback about their STA130 ChatBots experience, and finally be linked to grades after the course is completed.

Specific Procedures

The study will include pre- and post-course "ChatBots surveys" which will constitute 1% of the course grade. The pre- and post-course "ChatBots surveys" must be completed to receive course credit; however, student questionnaire responses (and potentially related course performance outcomes) will only be included in potential scientific publications if consent for their use for this purpose is given. Regarding such data, any publicly released analyses or data will be fully anonymized and student identities will never be publicly known. The "pre-course ChatBots survey" will be available at the start of the Fall 2024 term until Friday, September 20th. The "post-course ChatBots survey" will be available from Friday, November 29th until the date of the course final exam. The questionnaires together should take no longer than one hour to complete. Your consent to allow your response to be included in potential scientific publications will remain confidential and will not be known by the course instructor and will not affect your course grade.

Compensation

All students who complete the pre- and post-course "ChatBots surveys" are awarded 0.5% points (each, for a total of 1% of the overall course grade), regardless of their consent decisions.

1. **Consent for the use of student data for the purposes of a research publication.** Course credit is for completing the pre- and post-course ChatBots surveys does not depend on a students consent decision.

Please select one of the following:

*

- ☐ Yes, I authorize the use of the data collected about me through the pre- and post-course ChatBot surveys to be used for the purposes of a research publication. I understand that I will be compensated 0.5% for completing each of the pre- and post-course ChatBots surveys (for a total compensation of 1% of the overall STA130 course grade).
- ☐ No, I do not want my data included in any research publications, but I want to complete the surveys. I understand that I will be compensated 0.5% for completing each of the pre- and post-course ChatBots surveys (for a total compensation of 1% of the overall STA130 course grade). By choosing this option I understand that data collected about me may still be used for the purposes of course feedback, but that it will not be used in any way as part of published study results. I also understand that this choice will in no way affect the way I am graded in STA130.
- ☐ I do not want to complete either the pre- or post-course ChatBots surveys. I realize that I am forfeiting the 1% course credit by doing so.

2. Beyond the above consent decision, we now additionally request your further consent decision **allowing us to collect and use the text of "ChatGPT transcript history logs" along with associated HW answers for the purposes of a research publication.**

Providing a consent decision for this request is not required for the completion and credit award of the pre-course or post-course surveys, which depends only on the previous consent decision as described. Your consent to allow the text of "ChatGPT transcript history logs" along with associated HW answers to be included in potential scientific publications will remain confidential and will not be known by the course instructor and will not affect your course grade.

When considering your consent decision regarding this request please note that all text extraction will be subject to **the same anonymization procedures** utilized in all aspects of the data processing protocols associated with the pre- and post-course "ChatBots survey" questionnaires of the currently approved protocol proposal (#00047048). In short, this means that after linking this information to the pre- and post-course survey response data and course grades, student names will never be a part of any publicly released analysis or data.

The actual usage of the data in the manner requested is as of now subject to and conditional on the review and approval of the amendment revision request by the University of Toronto Human Research Ethics Board. Presuming such an eventual approval, your consent decision will determine the usage of your data with respect to this question; however, an affirmative consent decision to this questions IS NOT BINDING and MAY BE REVERSED at any time prior to any produced publication by declining consent for the usage of your data through the "ChatBot consent form" (<https://forms.office.com/r/Rabcpyu3U2>) associated with the pre- and post-course surveys. Any subsequent consent decision declining the use of student data in that context will be taken to imply an analogous choice declining the additional use of the text of "ChatGPT transcript history logs" along with associated HW answers.

Please select one of the following: *

- ☐ Having already understood and provided my above consent decision related to the pre- and post- course ChatBot surveys, **I additionally consent to allowing the collection and use of the text of my "ChatGPT transcript history logs" along with associated HW answers** for the purposes of a research publication.
- ☐ Having already understood and provided my above consent decision related to the pre- and post- course ChatBot surveys, **I DO NOT additionally consent to allowing the collection and use of the text of my "ChatGPT transcript history logs" along with associated HW answers** for the purposes of a research publication.

Tell Us About Your Experience in STA130

3. Approximately how many total hours per week on average did you spend on STA130 this semester? *

☐ 6 or fewer hours

☐ 6 to 9 hours

☐ 9 to 12 hours

☐ 12 or more hours

4. The class average "5-Star review" for CHATBOTS in STA130 has been just below a value of 4 throughout the semester (where 5 is the best and 1 is the worst). Please provide your "5-Star reviews" for each of these key aspects of the course. *The levels of 3.5 and 4.5 have been added to allow for more differentiation if desired.* *

	1 (worst)	2 stars	3 stars	3.5 stars	4 stars	4.5 stars	5 (best)
My "5-Star review" for the STA130 Course Wiki-Textbook	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My "5-Star review" for the STA130 Custom NotebookLM ChaBot	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My "5-Star review" for the STA130 Course Lectures and/or notebooks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My "5-Star review" for the STA130 Course Tutorials and/or notebooks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My "5-Star review" for the "Friday TUT first then Monday LEC" structure of the course	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My "5-Star review" for the STA130 Course Homework	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My "5-Star review" for the STA130 Course Project	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My final overall "5-Star review" for ChatBots in STA130	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5. How do you feel about the following statements? *

	Strongly disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly agree
Having access to CHATBOTS generally seemed to increase my motivation and level of engagement in STA130	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Before taking the class and in the early stages of the class I had concerns about taking STA130, but having access to CHATBOTS in STA130 helped address my concerns	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CHATBOTS increased my confidence that I would be able to succeed in STA130	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I had shared or relatable experiences using CHATBOT S that gave me opportunities to connect or bond with my fellow classmates in STA130	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6. How do you feel about the following statements? *

	Strongly disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly agree
I have a sense of community and belonging here at UofT	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have a sense of community and belonging here in STA130	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
STA130 has helped me to develop a sense of community and belonging at UofT	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
STA130 TUTORIALS have helped me develop a sense of community and belonging at UofT (or at least in STA130)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The STA130 COURSE PROJECT has helped me develop a sense of community and belonging at UofT (or at least in STA130)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Tell Us About Your Experience regarding CHATBOTS in STA130

7. How do you feel about the following statements? *

	Strongly disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly agree
I support the continued formal integration of CHATBOTS into STA130	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CHATBOTS should be either just ignored or explicitly banned in STA130	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Any formal integration of CHATBOTS into STA130 should feel more optional	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Guidance and support for using CHATBOTS in STA130 should be increased	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The formal integration of CHATBOTS into STA130 needs to be reimagined and revised to build on strengths and/or remove current weaknesses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would like future STA courses (beyond STA130) to have course designs that formally utilize CHATBOT integrations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8. How do you feel about the following statements? *

	Strongly disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly agree
CHATBOT help in understanding code tended to be "as good or better" compared to help from a TA or peer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CHATBOT help in understanding course concepts tended to be "as good or better" compared to help from a TA or peer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I appreciated the constant "24/7 virtual TA" support provided by CHATBOTS and found it useful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CHATBOTS were an aspect of STA130 which tended to help reduce my stress levels	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CHATBOTS in STA130 were a frequently recurring source of frustration for me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

9. How do you feel about the following statements? *

	Strongly disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly agree
I frequently chose to use CHATBOTS in STA130 to help with my understanding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I frequently chose to READ the Course Wiki-Textbook in STA130 to help with my understanding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I frequently chose to use the STA130 Custom NotebookLM ChatBot in STA130 to help with my understanding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I frequently chose to use internet searches in STA130 to help with my understanding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I frequently chose to seek help through classmates, peers, or other (free or paid) tutoring and support services to help with my understanding in STA130	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

10. How do you feel about the following statements? *

	Strongly disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly agree
CHATBOTS in STA130 generally quickly provided reliable information that helped my understanding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
READING the Course Wiki-Textbook in STA130 generally quickly provided reliable information that helped my understanding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The STA130 Custom NotebookLM ChatBot generally quickly provided reliable information that helped my understanding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Internet searches in STA130 generally quickly provided reliable information that helped my understanding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Seeking help through classmates, peers, or other (free or paid) tutoring and support services to help with my understanding in STA130 generally quickly provided reliable information that helped my understanding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11. How do you feel about the following statements? *

	Strongly disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly agree
The STA130 course itself, without the use of additional paid tutoring services, provided sufficient access to resources supporting my learning in STA130	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CHATBOTS empowered and benefited my learning efforts in STA130	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CHATBOTS streamlined and simplified my learning efforts in STA130	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I valued "learning to learn with CHATBOTS" in STA130	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I think the "learning to learn with CHATBOTS" skills I developed in STA130 will be helpful for other classes too	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

12. How do you feel about the following statements? *

	Strongly disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly agree
CHATBOTS were detrimental to my learning process in STA130	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I did not "do the work" in STA130 because of the inclusion of CHATBOTS	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have developed bad habits as a result of using CHATBOTS in STA130	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I consider the risks CHATBOTS pose to society and the world frequently	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The risks CHATBOTS pose to society and the world deeply concern me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

13. How do you feel about the following statements? *

	Strongly disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly agree
As a result of STA130, I think CHATBOTS are very useful as a tool supporting learning and understanding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CHATBOTS are a helpful tool for preparing and doing well on STA130 exams	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
As a result of STA130, I think CHATBOTS are very useful as a tool supporting productivity and efficiency	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
As a result of STA130, I think CHATBOTS are very useful as a tool for statistics and data science	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
As a result of STA130, I think CHATBOTS are very useful as a tool for helping with writing and communication	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
As a result of STA130, I think CHATBOTS are very useful as a tool for coding and programming	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
As a result of STA130, I use CHATBOTS a lot more for non-STA130 purposes than I otherwise would have	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Tell Us About Your Experience regarding the Custom NotebookLM CHATBOT in STA130

14. How do you feel about the following statements? *

	Strongly disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly agree
The custom STA130 NotebookLM ChatBot was too much trouble to set up	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I used the custom STA130 NotebookLM ChatBot extensively	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I should have used the custom STA130 NotebookLM ChatBot more frequently	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Custom STA130 NotebookLM ChatBot was a very useful part of the course for me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Custom STA130 NotebookLM ChatBot was the best part of the formal integration of CHATBOTS into STA130	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The formal integration of CHATBOTS into STA130 would be greatly improved if the custom STA130 NotebookLM ChatBot could code well	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Any formal integrations of CHATBOTS into future STA courses (beyond STA130) should include something like the custom STA130 NotebookLM ChatBot	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Tell Us About Your Experience regarding PYTHON in STA130

15. How do you feel about the following statements? *

	Strongly disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly agree
It is not possible to use PYTHON effectively as a tool in STA130 without a good amount of previous experience with PYTHON	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I struggled with using PYTHON as a tool in STA130	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I valued learning to use PYTHON as a tool in STA130	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The STA130 course itself, without the use of additional paid tutoring services, provided sufficient access to resources to support my learning process while learning the use of PYTHON as a tool in STA130	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CHATBOTS were a sufficient resource to support my use of PYTHON as a tool in STA130	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I got better at using PYTHON as a tool because of STA130	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am good at using PYTHON as a tool because of STA130	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I valued learning to use CHATBOTS to help me use PYTHON as a tool as we did in STA130	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

16. How do you feel about the following statements? *

	Strongly disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly agree
I believe I have developed skills in utilizing CHATBOTS that would allow me to UNDERSTAND CODE of a new programming language like R	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe I have developed skills in utilizing CHATBOTS that would help me USE ANY new programming language as a tool (such as R)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am confident that I CAN USE ANY new programming language as a tool (such as R) using skills built in STA130	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe it's important that all STA courses use the same programming language (either just PYTHON or just R)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When making a relative comparison based on my understanding of PYTHON versus R, I think it's more valuable to spend more time using PYTHON rather than R	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When making a relative comparison based on my understanding of PYTHON versus R, I don't think it matters which language I spend more time using	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

17. How do you feel about the following statements? *

	Strongly disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly agree
I found learning statistical and data science concepts within the context of PYTHON and CHATBOTS to be compelling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I found learning statistical and data science concepts with PYTHON and CHATBOTS in the manner of STA130 to be effective	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I found USING SIMULATION to understand statistical and data science concepts in the manner of STA130 with PYTHON and CHATBOTS to be effective	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Program learning outcomes

Please rate how well you feel the course introduced you to each of the following program learning outcomes.

18. How would you describe your professional writing ability? *

- ☐ Excellent
- ☐ Very Good
- ☐ Good
- ☐ Adequate
- ☐ Poor

19. For the development of your professional writing ability, how helpful was... *

	Not Helpful	Slightly Helpful	Moderately Helpful	Very Helpful	Extremely Helpful	Not Applicable
Weekly writing assignments (in the Weekly Homeworks)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interacting with CHATBOTS?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The course project and related assignments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The STA130 Mentorship Program	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

20. For the development of your communication skills, how helpful were... *

	Not Helpful	Slightly Helpful	Moderately Helpful	Very Helpful	Extremely Helpful	Not Applicable
Tutorials and tutorial activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Weekly writing assignments (in the Weekly Homeworks)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interacting with CHATBOTS?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The course project and related assignments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The STA130 Mentorship Program	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

21. After completing STA130 how good are you at... *

	Not at all	Not very well	Neutral	Reasonably Well	Extremely Well	I don't know
Describing the purpose of statistical inference (for example, testing and confidence intervals)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Applying statistical methods for description, prediction and inference	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Applying statistical methods for description, prediction and inference	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Visualizing data	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Using simulation to solve a variety of problems with data	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Manipulating and "wrangling" data	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Using Python for data analysis	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Communicating in writing to both statisticians and non-statisticians	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Communicating orally to both statisticians and non-statisticians	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Translating practical problems into statistical terms and vice versa	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Describing how ethical practice is important in statistical work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Using statistical knowledge to solve problems in other disciplines	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Understanding statistical analysis as a problem-	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

- problem solving process (i.e. from study design through data exploration and analysis through communication of results)
22. most interesting part of this course? *
23. Evaluating strengths and limitations of solutions to statistical problems
- u add or what would you change about the course? *

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