



Start of Block: required_student_info

s_somas

Student Survey of Motivational Attitudes toward Statistics

first First Name (as it would appear on a class roster):

last Last Name (as it would appear on a class roster):



email Your **School** Email Address:

End of Block: required_student_info

Start of Block: optional_instructor_consent



Display this question:

If If False

instructor_consent Click to write the question text

- ☐ Yes: I agree to participate AND am 18 years or older (1)
- ☐ No: I do not agree to participate, OR I am under 18 years old (2)

End of Block: optional_instructor_consent

Start of Block: required_masder_consent



masder_consent **Title of research study:** Developing Validated Instruments to Measure Student/Faculty Attitudes in Undergraduate Statistics and Data Science Education **IRB #:** IRB-FY2025-79 **Investigator:** Michael A. Posner, Professor of Statistics and Data Science, michael.posner@villanova.edu, 610-519-3016 **Key Information:** This study involves research and is voluntary. You can stop at any time without penalty. **Purpose of the Research:** We are gathering data on attitudes toward statistics. We are interested in (1) what these attitudes are, and (2) how attitudes relate to student and instructor characteristics and classroom environment. The following survey asks demographic information and about your attitudes towards statistics. The long term goal of this research is to improve instruction in statistics courses. **Procedures:** The entire survey should take about 15 minutes to complete. We request that you complete every item, but you are not required to do so. Participants must be at least 18 years of age. You have been asked to give us your name and email address so that we can link your pre-class survey responses with your post-class survey responses. Your survey responses may be linked with other data collected as a part of this study. Your instructor may request a list of student names who have completed the survey in order to award credit (as a required assignment or for extra credit). Students who do not consent and stop before completing the survey will still be eligible for this credit and will be included in this list. Your instructor will have access to the complete data for their class, including your name and email address. However, access to this data will not be granted until the course is over. A dataset that



excludes all personal identifying information will be made publicly available for educational researchers. The study investigator may grant access to approved researchers to use identifiable data for validated studies after a Data Use Agreement has been signed. **Risks / Discomforts:** This study is educational research and does not have any known associated risks. **Benefits to Prospective Subjects and/or to Others:** By filling out this attitudes survey, you may be better able to identify your feelings toward statistics. Your responses may also aid your instructor and statistics education researchers in improving instruction in statistics courses. For Villanova-specific resources and other mental health resources, visit the Villanova IRB website. To view these online, navigate to irb.villanova.edu and click “Participating in a Research Study.” As a participant in research, you have rights. Visit the Villanova IRB website to read the Participant Bill of Rights. To read online, navigate to irb.villanova.edu and click “Participating in a Research Study.” **Consent will be given through clicking “I accept” on Qualtrics surveys, by selecting one of the following options:** I have read and understand the terms and conditions of this research study and agree to participate. I understand my participation is voluntary and that I may withdraw at any time without penalty. By clicking “yes” I am indicating my permission to participate in this study.

- ☐ Yes: I agree to participate AND am 18 years or older (1)
- ☐ No: I do not agree to participate, OR I am under 18 years old (0)

End of Block: required_masder_consent

Start of Block: optional_global_items

global_directions

Directions

The following statements and questions are designed to identify your beliefs about statistics. Try not to think too deeply about each response. Record your answer and move quickly to the next item. Please note that the labels for each scale for the following questions changed from item to item. Please respond to all of the items presented.



gbeliefs_1

	Strongly Disagree (1)	Disagree (2)	Somewhat Disagree (3)	Neither Agree Nor Disagree (4)	Somewhat Agree (5)	Agree (6)	Strongly Agree (7)
If somebody is not good at math, they will not be good at statistics either. (gbeliefs_1)	☐	☐	☐	☐	☐	☐	☐





gbeliefs_2

	Strongly Disagree (1)	Disagree (2)	Somewhat Disagree (3)	Neither Agree Nor Disagree (4)	Somewhat Agree (5)	Agree (6)	Strongly Agree (7)
Statistics are often misused to support certain viewpoints. (gbeliefs_2)	☐	☐	☐	☐	☐	☐	☐



gbeliefs_3

	Strongly Disagree (1)	Disagree (2)	Somewhat Disagree (3)	Neither Agree Nor Disagree (4)	Somewhat Agree (5)	Agree (6)	Strongly Agree (7)
Statistics can never be trusted. (gbeliefs_3)	☐	☐	☐	☐	☐	☐	☐



global_1

	Very Poorly (1)	Poorly (2)	Below Average (3)	Average (4)	Above Average (5)	Well (6)	Very Well (7)
How well have you done in mathematics courses you have taken in the past? (global_1)	☐	☐	☐	☐	☐	☐	☐

global_2

	Very Poor (1)	Poor (2)	Below Average (3)	Average (4)	Above Average (5)	Good (6)	Very Good (7)
How good are you at mathematics? (global_2)	☐	☐	☐	☐	☐	☐	☐



global_3

	Not At All (1)	Very Little (2)	Less Than Average (3)	Average (4)	Greater Than Average (5)	Large Amount (6)	Great Deal (7)
In the field in which you hope to be employed when you finish school, how much will you use statistics? (global_3)	☐	☐	☐	☐	☐	☐	☐



global_4

	Not At All Confident (1)	Very Little Confidence (2)	Little Confidence (3)	Some Confidence (4)	Fairly Confident (5)	Confident (6)	Very Confident (7)
How confident are you that you can master introductory statistics material? (global_4)	☐	☐	☐	☐	☐	☐	☐

global_5

	Not At All Likely (1)	Unlikely (2)	Fairly Unlikely (3)	Average (4)	Fairly Likely (5)	Likely (6)	Very Likely (7)
If the choice had been yours, how likely is it that you would have chosen to take any course in statistics? (global_5)	☐	☐	☐	☐	☐	☐	☐



End of Block: optional_global_items

Start of Block: required_constructs

construct_directions

Directions The statements below are designed to identify your attitudes about statistics. Each item has 7 possible responses. The responses range from "Strongly Disagree" through "Neither Agree Nor Disagree" to "Strongly Agree". Please read each statement. Mark the ONE response that most clearly represents your degree of agreement or disagreement with that statement. Try not to think too deeply about each response. Record your answer and move quickly to the next item. Please respond to all of the statements.





items

	Strongly Disagree (1)	Disagree (2)	Somewhat Disagree (3)	Neither Agree Nor Disagree (4)	Somewhat Agree (5)	Agree (6)	Strongly Agree (7)
I am willing to seek help when I am struggling academically (e.g., asking a tutor/professor/colleague). (ss_acadsc_8)	☐	☐	☐	☐	☐	☐	☐
I know how to prioritize my time to accomplish goals. (ss_acadsc_3)	☐	☐	☐	☐	☐	☐	☐
I seek out additional information when I do not understand something. (ss_acadsc_4)	☐	☐	☐	☐	☐	☐	☐
I find myself to be an overachiever when it comes to academics. (ss_acadsc_5)	☐	☐	☐	☐	☐	☐	☐
I am willing to seek help from others when I am struggling academically. (ss_acadsc_9)	☐	☐	☐	☐	☐	☐	☐
I have good time management skills. (ss_acadsc_1)	☐	☐	☐	☐	☐	☐	☐
When I do not understand a concept or skill, I often ask for help. (ss_acadsc_2)	☐	☐	☐	☐	☐	☐	☐



I know how to take good notes. (ss_acadsc_6)	☐	☐	☐	☐	☐	☐	☐
I avoid working on things that are intimidating to me. (ss_acadsc_7)	☐	☐	☐	☐	☐	☐	☐
I would feel good about myself if my peers came to me for statistical advice. (ss_attain_1)	☐	☐	☐	☐	☐	☐	☐
I would feel valued if someone wanted my help in understanding statistics. (ss_attain_2)	☐	☐	☐	☐	☐	☐	☐
Doing well in statistics is important to my sense of self. (ss_attain_3)	☐	☐	☐	☐	☐	☐	☐
I would feel proud of myself if someone told me that I am good at statistics. (ss_attain_4)	☐	☐	☐	☐	☐	☐	☐
Understanding statistics makes me feel good about myself. (ss_attain_5)	☐	☐	☐	☐	☐	☐	☐
I prioritize other tasks over learning statistics. (ss_cost_1)	☐	☐	☐	☐	☐	☐	☐
Learning statistics is worth being frustrated at times. (ss_worth_1)	☐	☐	☐	☐	☐	☐	☐
Learning statistics is worth the time and effort required. (ss_worth_2)	☐	☐	☐	☐	☐	☐	☐



The time I spend learning statistics is time well spent. (ss_worth_3)

☐☐☐☐☐☐☐

I would rather learn any subject other than statistics. (ss_cost_2)

☐☐☐☐☐☐☐

Learning statistics is a good use of my time. (ss_worth_4)

☐☐☐☐☐☐☐

I have trouble understanding statistics. (ss_difficulty_2)

☐☐☐☐☐☐☐

I am able to make decisions that require statistical thinking. (ss_expectancy_1)

☐☐☐☐☐☐☐

I can complete tasks that require basic statistical skills. (ss_expectancy_2)

☐☐☐☐☐☐☐

I am confident I can interpret graphs. (ss_expectancy_3)

☐☐☐☐☐☐☐

I can use data to make appropriate decisions. (ss_expectancy_4)

☐☐☐☐☐☐☐

If I learn statistics, I will look smart. (ss_goals_2)

☐☐☐☐☐☐☐

I want to learn statistics so that I will look smart. (ss_goals_3)

☐☐☐☐☐☐☐

Learning statistics will help me avoid looking

☐☐☐☐☐☐☐



foolish. (ss_goals_4)							
People will be impressed if I learn statistics. (ss_goals_1)	☐	☐	☐	☐	☐	☐	☐
I am interested in learning more about statistics. (ss_intenj_1)	☐	☐	☐	☐	☐	☐	☐
I find statistics boring. (ss_cost_3)	☐	☐	☐	☐	☐	☐	☐
Using statistics to solve real-world problems is personally enjoyable. (ss_intenj_2)	☐	☐	☐	☐	☐	☐	☐
I am curious about statistics. (ss_intenj_3)	☐	☐	☐	☐	☐	☐	☐
I want to learn statistics. (ss_intenj_4)	☐	☐	☐	☐	☐	☐	☐
I find no joy in doing statistics. (ss_cost_4)	☐	☐	☐	☐	☐	☐	☐
I need to know statistics to satisfy employers. (ss_utility_1)	☐	☐	☐	☐	☐	☐	☐
I value statistics because it makes me an informed citizen. (ss_utility_2)	☐	☐	☐	☐	☐	☐	☐
Knowing statistics will help me look more appealing to employers. (ss_utility_3)	☐	☐	☐	☐	☐	☐	☐



I will rarely use statistics in the future. (ss_cost_5)	☐	☐	☐	☐	☐	☐	☐
Statistics will help me understand news reports. (ss_utility_4)	☐	☐	☐	☐	☐	☐	☐
Learning statistics is hard for me. (ss_difficulty_1)	☐	☐	☐	☐	☐	☐	☐
Making sense of statistics is difficult for me. (ss_difficulty_3)	☐	☐	☐	☐	☐	☐	☐
Statistics is a difficult subject to learn for me. (ss_difficulty_4)	☐	☐	☐	☐	☐	☐	☐

End of Block: required_constrcuts

Start of Block: optional_teach_stud

Display this question:

If SurveyInstance = 2



live_meet Did your statistics course have live meetings?

- ☐ Yes, this class had live meetings (in person and/or online) (1)
- ☐ No, this class did not have live meetings (it was only asynchronous) (0)



tsr_grid For each item given, indicate the amount to which you agree with each statement.

Display this choice:

If Did your statistics course have live meetings? = Yes, this class had live meetings (in person and/or online)

	Strongly Disagree (1)	Disagree (2)	Somewhat Disagree (3)	Neither Agree nor Disagree (4)	Somewhat Agree (5)	Agree (6)	Strongly Agree (7)
Display this choice: If Did your statistics course have live meetings? = Yes, this class had live meetings (in person and/or online) I feel comfortable asking my instructor questions during class. (tsr_class) I would feel comfortable contacting my instructor with questions outside of class. (tsr_outside)	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐



My instructor cares about me. (tsr_care)	☐	☐	☐	☐	☐	☐	☐
All interactions I have with my instructor are positive. (tsr_interact)	☐	☐	☐	☐	☐	☐	☐
My instructor knows me individually. (tsr_individual)	☐	☐	☐	☐	☐	☐	☐
My instructor creates opportunities for students to build community in class. (tsr_community)	☐	☐	☐	☐	☐	☐	☐

End of Block: optional_teach_stud

Start of Block: required_personal_demographics





gender What is your gender?

- ☐ Woman (1)
 - ☐ Man (2)
 - ☐ Non-binary (3)
 - ☐ Prefer not to disclose (4)
 - ☐ Prefer to self-describe: (5)
-



age What is your age? Please enter an integer.





race What is your race, ethnicity, or origin? Select all that apply.

- ☐ **White:** German, Irish, English, French, etc. (1)
- ☐ **Black or African-American:** African American, Haitian, Nigerian, etc. (2)
- ☐ **Hispanic, Latino or Spanish origin:** Mexican, Mexican American, Puerto Rican, Cuban, Argentinean, Dominican, Salvadoran, Spaniard, etc. (3)
- ☐ **Middle Eastern or North African:** Lebanese, Egyptian, Turkish, Iranian, etc. (4)
- ☐ **American Indian or Alaskan Native:** Navajo, Mayan, Tlingit, etc. (5)
- ☐ **Asian:** Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese, Hmong, Laotian, Thai, Pakistani, Cambodian, etc. (6)
- ☐ **Native Hawaiian or Pacific Islander:** Native Hawaiian, Guamanian, Samoan, Fijian, etc. (7)
- ☐ **Some other race or origin:** Provide race(s) or origin(s) below. (8)

- ☐ **Prefer not to answer** (9)





first_gen Are you a first-generation college student? (If neither of your parents/guardians completed a four-year college degree, you are a first generation college student.)

- ☐ Yes (1)
- ☐ No (0)

End of Block: required_personal_demographics

Start of Block: optional_course_demographics



fluency This course is taught in a language in which

- ☐ I am a native speaker. (1)
- ☐ I am fluent, but not a native speaker. (2)
- ☐ I am proficient. (3)
- ☐ I am conversant at an intermediate level. (4)
- ☐ I have only basic or little knowledge. (5)
- ☐ I have no knowledge. (6)





class_level Which of the following best classifies you as a student?

- ☐ High school student (1)
- ☐ Freshman in college (First Year) (2)
- ☐ Sophomore in college (Second Year) (3)
- ☐ Junior in college (Third Year) (4)
- ☐ Senior in college (Fourth Year) (5)
- ☐ Fifth Year or more in college (6)
- ☐ Part-time student in college (7)
- ☐ Graduate student (e.g. Masters, Ph.D., Law School, Medical School) (8)
- ☐ Other: (9) _____





why_take Which of the following best describes why you are taking this class? Select all that apply.

- ☐ It is required by my major. (1)
- ☐ It is an elective for my major. (2)
- ☐ It is required by my minor. (3)
- ☐ It is an elective for my minor. (4)
- ☐ It fulfills a general education requirement. (5)
- ☐ It is not part of my major or minor or general education program, but it gives me additional credits needed to graduate. (6)
- ☐ It helps me prepare for my graduate or professional degree (e.g. Masters, Ph.D., Law School, Medical School) (7)
- ☐ Other: (8) _____



success_stat Have you successfully completed a statistics class PRIOR to this semester / quarter?

- ☐ Yes (1)
- ☐ No (0)



Skip To: success_where If Have you successfully completed a statistics class PRIOR to this semester / quarter? = Yes

Skip To: success_why_not If Have you successfully completed a statistics class PRIOR to this semester / quarter? = No

success_where Where did you successfully complete a statistics course? Select all that apply.

- ☐ High School non-AP statistics class (1)
- ☐ High School AP statistics class (2)
- ☐ 1 other college-level statistics course (3)
- ☐ More than 1 other college-level statistics course (4)

Display this question:

If Have you successfully completed a statistics class PRIOR to this semester / quarter? = No

success_why_not Why did you select NO?

- ☐ I have never taken a statistics course prior to this semester / quarter. (1)
- ☐ I took a statistics course in high school, but I did not successfully complete the course. (2)
- ☐ I took a statistics course in college, but I did not successfully complete the course. (3)
- ☐ Other: (4) _____



expected_grade What grade are you expecting to receive in this course?

- ☐ A (1)
- ☐ A or B (not sure which one) (2)
- ☐ B (3)
- ☐ C (4)
- ☐ D (5)
- ☐ F (6)



gpa_have Do you have a college GPA?

- ☐ Yes (1)
- ☐ No (2)

Skip To: gpa_college If Do you have a college GPA? = Yes

Skip To: gpa_hs If Do you have a college GPA? = No



gpa_college Please give your cumulative college GPA. For example, "My cumulative college GPA is 2.87 out of 4.0."

	Please provide numeric values below. (1)
My cumulative college GPA is (1)	
out of (maximum GPA possible) (2)	

Display this question:

If Do you have a college GPA? = No

gpa_hs Please give your cumulative **high school** GPA. For example, "My cumulative high school GPA was 2.87 out of 4.0" or "3.56 out of 5.0."

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Please provide numeric values below. (1)

My cumulative high school GPA was (1)

out of (maximum GPA possible) (2)

End of Block: optional_course_demographics

Start of Block: optional_major_minor

major1 Pick the field that **best** describes your major or intended major.

First Major Category (1)

Field of Study (2)

▼ Undecided (1) ... Other ~ Other (Please Specify) (71)

Display this question:

If Pick the field that best describes your major or intended major. = Other ~ Other (Please Specify)

major1_other Please specify your major or intended major.



major2 If you have a second major, pick the field that **best** describes your second major or second intended major.

Second Major Category (1)

Field of Study (2)

▼ None (1) ... Other ~ Other (Please Specify) (73)

Display this question:

If If you have a second major, pick the field that best describes your second major or second intend... = Other ~ Other (Please Specify)

major2_other Please specify your second major or second intended major.

minor1 If you have a minor, pick the field that **best** describes your minor.

First Minor Category (1)

Field of Study (2)

▼ None (1) ... Other ~ Other (Please Specify) (73)

Display this question:

If If you have a minor, pick the field that best describes your minor. = Other ~ Other (Please Specify)

minor1_other Please specify your minor.



minor2 If you have a second minor, pick the field that **best** describes your second minor or second intended minor.

Second Minor Category (1)

Field of Study (2)

▼ None (1) ... Other ~ Other (Please Specify) (73)

Display this question:

*If If you have a second minor, pick the field that best describes your second minor or second intend...
= Other ~ Other (Please Specify)*

minor2_other Please specify your second minor.

feedback You are welcome to provide any other comments about your attitudes toward statistics.

End of Block: optional_major_minor

Start of Block: optional_add_questions