



Supplemental Figure 1: Survey Questions

Survey on Science Attitudes, Career Goals, and Impacts of Co-curricular Activities

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SECTION 1, CONSENT: The purpose of the following section is to give students informed consent. Note that our IRB does not allow data from students under 18 to be used in our research study.

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We invite you to participate in research about the motivations, attitudes, abilities, and career goals of Saint Paul College students. We feel that your experience as a science student can contribute much to our understanding of science education and may help us make changes in our programming that will benefit future students. Your participation in this research is voluntary. If you choose to participate, we will collect your responses to the survey and link them to your D2L grades and student records. If you choose not to participate in the research, you may still complete the survey, but your responses will not be linked to your enrollment data and your responses will not be used as a part of the research. The survey should take about 15 minutes to complete and it must be completed in one sitting (you cannot save it and come back later). If you are doing this for class credit, your instructor will not know what percentage of questions you answer or have access to your individual answers. Only Dr. VanderWaal Mills and the research team will see your responses. The results of the research will be produced only in the form of aggregate tables and statistics that contain no personally identifying information. Whether you choose to participate in the research or not, if you do not wish to answer any of the questions included in the survey, you may skip them and move on to the next.

Known risks: The survey questions are about your own opinions, interests, abilities, and goals. There are no "right" or "wrong" answers. We consider the potential risk of completing this questionnaire to be minimal or none at all.

Benefits: Your instructor may give a small point incentive for responding to the survey; the points will be given even if you do not want your data to be used in the study. If you have any questions about this survey, please contact: Kristyn VanderWaal Mills, Ph.D. 651.846.1696 kristyn.vanderwaalmills@saintpaul.edu We appreciate your time and feedback. Thank you!

Q1 Statement of Consent:

"I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and my questions have been answered to my satisfaction. **I consent voluntarily to be a participant in this research.**"

(Your answer will not affect your ability to answer the survey questions; it only is your consent for your answers and student record information to be used in the research.)

- Yes (1)
- No (2)

Q1.2 "I affirm that I am 18 years or older."

- Yes (1)
- No (2)

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SECTION 2, RECORD MATCHING: The following set of questions is so we can match student survey data to their ISRS data. It also asks where/how the survey is being taken.

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Q2 Please provide your Saint Paul College Star ID. _____

Q2.1 Please write your Saint Paul College email address below:

Q2.2 Please type your full name, which will serve as an electronic signature. _____

Q2.3 Enter today's date: _____

Q2.4 What course(s) are you taking this semester or what program(s) are you part of (check all that apply):

- (a) General Chemistry 1
- (b) Genetics
- (c) Organic Chemistry 1
- (d) Science Scholars Program
- (e) CAP-SH (Career and Academic Planning-Science and Health) Program

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SECTION 3, CO-CURRICULAR AND COURSE ACTIVITY: This section helps us understand how involved the student is and how experienced they are with science at our college.

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Q3 Which of the following academic support resources at Saint Paul College have you used in the last six months? (Select all that apply)

- Writing Tutor through the Tutoring Center
- Math Tutor through the Tutoring Center
- Science Tutor through the Tutoring Center
- Science Study Center
- Library
- Academic Advisor (Pathway Advisor)
- None of these

Q3.1 I Which of the following Saint Paul College co-curricular activities have you participated in in the last six months? (Select all that apply)

- Career Services event (ex: job or networking fair, resume review, mock interview, etc.)
- TRiO Student Support Services event or workshop
 - Student Senate
- Student Science Association (Science Club)
- Math Club
- NorthStar STEM Alliance
- Mathematics Student Research League
- Other campus Student Life event (ex: welcome week events, mural painting, blood drive, alumni panel, etc.)



- Science Scholars Event - *branch to S8 if selected*
- Science Career and Academic Planning event (CAP-SH) - *branch to S8 if selected*
- Undergraduate Research Project - *branch to S8 if selected*
- Met with my Faculty Mentor - *branch to S8 if selected*
- None of these

Q3.2 Are you receiving a Scholarship at Saint Paul College? (*if yes, branch to Q3.3*)

- Yes
- No

Q3.3 Are you receiving the Science Scholars Scholarship at Saint Paul College?

- Yes (*if yes, branch to S9*)
- No
- I'm not sure

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SECTION 4, CAREER AND CREDENTIAL GOALS: This section helps asks students to identify career and credential goals. (from PRiSE (Persistence Research in Science and Engineering), Harvard-Smithsonian Center for Astrophysics, Center for Science Education: https://www.cfa.harvard.edu/sed/projects/PRiSE_survey_proof.pdf)
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Q4.1 Which of the following best describes your career goal?

- Medical professional (e.g. doctor, dentist, veterinarian) (1)
- Health professional (e.g. nurse, pharmacist) (2)
- Biologist (3)
- Earth/Environmental scientist (4)
- Astronomer (5)
- Chemist (6)
- Physicist (7)
- Engineer (8)
- Computer scientist (9)
- Social scientist (e.g. psychologist, sociologist) (14)
- Other scientist (10) _____
- Mathematician (11)
- Science teacher (12)
- Math teacher (13)
- Business person (15)
- Lawyer (16)
- English/Language Arts specialist (17)
- Other non-science-related career (18) _____
- Not sure (19)

Q4.3 What is the highest degree you expect to earn?

- Certificate (1)
- Diploma (2)
- 2-year degree (such as AA or AAS) (3)
- 4-year degree (such as BA or BS) (4)
- A graduate degree (such as MS, PhD, MD, JD) (5)
- Other (7) _____
- Not sure (8)

SECTION 5, **COMMITMENT TO A SCIENCE CAREER AND SCIENCE IDENTITY**: From Chemers, *et al.*, 2011. CarSci are questions related to commitment to a science career and SciID are questions related to science identity.

Please indicate how much you agree or disagree with each of the statements below.



1 = strongly disagree; 2 = somewhat disagree; 3 = somewhat agree; 4 = strongly agree; 99 = No opinion

- CarSci 5.1 "I intend to work in a job related to science."
- SciID 5.2 "In general, being a scientist is an important part of my self-image."
- CarSci 5.3 "I see the next steps in the field of science, and I intend to take them."
- CarSci 5.4 "I will work as hard as necessary to achieve a career in science."
- SciID 5.5 "I have a strong sense of belonging to the community of scientists."
- SciID 5.6 "Being a scientist is an important reflection of who I am."
- CarSci 5.7 "I expect a career in science will be very satisfying."
- SciID 5.8 "I have come to think of myself as a 'scientist.'"
- SciID 5.9 "I feel like I belong in the field of science."
- CarSci 5.10 "I feel that I am on a definite career path in science."
- CarSci 5.11 "I definitely want a career for myself in science."
- CarSci 5.12 "Science is the ideal field of study for my life."
- SciID 5.13 "I am a scientist."

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SECTION 6, SCIENCE INTRINSIC MOTIVATION, CAREER MOTIVATION, AND SELF-EFFICACY: The Science Motivation Questionnaire was originally published in Glynn, *et al.*, 2011 and was to "[assess] intrinsic motivation, self-determination, self-efficacy, career motivation, and grade motivation" in science and non-science students. IM = Intrinsic Motivation, CM = Career Motivation, SE = Science Self-efficacy

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Please indicate how often you think each of the following statements below--or something similar--when you are in a science course.

1 = Never; 2 = Rarely; 3 = Sometimes; 4 = Often; 5 = Constantly

- IM 6.1 "The science I learn is relevant to my life."
- IM 6.2 "Learning science is interesting."
- CM 6.3 "Learning science will help me get a good job."
- SE 6.4 "I am confident I will do well on science tests."
- CM 6.5 "Knowing science will give me a career advantage."
- IM 6.6 "Learning science makes my life more meaningful."
- CM 6.7 "Understanding science will benefit me in my career."
- SE 6.8 "I am confident I will do well on science labs and projects."
- SE 6.9 "I believe I can master science knowledge and skills."
- IM 6.10 "I am curious about discoveries in science."
- SE 6.11 "I believe I can earn a grade of 'A' in science."
- IM 6.12 "I enjoy learning science."
- SE 6.13 "I am sure I can understand science."
- CM 6.14 "My career will involve science."
- CM 6.15 "I will use science problem-solving skills in my career."