



**Biologists and Graph
Interpretation Network**

BioGraphI Interview Questions

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What is BioGraphI?

Biologists and Graph Interpretation (BioGraphI) is a Research Coordination Network of faculty who work collaboratively to increase student persistence in biology through improving representation of diverse scientists in the curriculum and incorporating data interpretation skills. We create lessons about graph and data interpretation, featuring the scientific contributions of biologists who are members of historically excluded groups (HEGs). These lessons include video interviews with these biologists, allowing students to hear directly from counterstereotypical scientists about their discoveries. For more information about how the BioGraphI project is advancing inclusion in biology and improving data literacy, visit [our webpage](#).

BioGraphI interview questions

Our interview questions are separated into two sections below: graph interpretation and biographical questions. We begin each interview with the graph interpretation questions for two reasons. First, beginning in this way allows instructors to easily connect this lesson with their existing unit materials. Second, by presenting the interviewee as a scientist first, the interview structure counters the implicit and explicit biases society has about who belongs in science.

We end with the biographical questions to help students reflect on their perceptions of people who do biology. The questions also encourage students to compare their own interests and identities to those of the scientist being interviewed.

Graph interpretation questions

These questions will be jointly developed by the interviewer and interviewee, and exact wording depends on the data figures chosen to feature in the lesson. Adapt these questions as needed to match your data figure(s) and lesson objectives. Add other questions if they are needed for your lesson.

Required questions

1. Orient us to this graph we've been working on.
 - a. What do these axes mean? How did you measure stuff? What do the units mean? How did you make this graph? Why did you decide to show the data in this way?
 - b. *Vocabulary to incorporate:* types of graphs, units, independent (explanatory, predictor) variables, dependent (response) variables
2. Tell me about the research that these data came from.
 - a. This is an opportunity for the scientist to confirm the hypothesis inferred by and/or the graph interpretations made by students.
 - b. *Vocabulary to incorporate:* hypothesis, prediction, (explanatory, predictor) variables, dependent (response) variables, controlled (standardized) variables if applicable
3. Describe the follow up experiment or potential follow up experiments.
 - a. The answer to this question shows how the work that the students are focusing on fits into the broader interests of the scientist
 - b. Can describe a potential experiment you plan to do (or others could do); does not have to be one you've done
 - c. Could also describe related research
4. Explain the significance of this research.
 - a. Consider tying to the lesson objectives and relevance of your results to society and your discipline

Suggested additional questions

1. Tell us how you made this graph.
 - a. For more complex graphs, students may be unfamiliar with the methods that produced them.
 - b. Could a relevant question to include in a programming or biostatistics course
2. Explain why you used this model organism/system.
 - a. This can be an opportunity for students to appreciate the strengths and weaknesses of using models.
 - b. You could describe how you selected this model over other potential models.
3. What led you to conduct this specific study?
 - a. Could describe the observations, prior knowledge, or other inspiration that led you to this research question
 - b. Keep in mind: One of our required biographical questions asks you, more broadly, what scientific questions interest you; these two questions can tie together in your interview.

Biographical questions

These questions are divided into required and optional. Interviewees can decide which of the optional questions to answer. Based on our experience, the “strongly suggested questions” are particularly of interest to students. Feel free to change the order of the questions as you develop the overall narrative of your interview.

Below each question, we offer ways to think about answering the questions.

Required questions

1. What kinds of scientific questions interest you the most?
 - a. Try to match the terminology used to the level of the class; be mindful of defining any jargon that is used.
 - b. Relate your research to the graphs in this lesson
2. When and how did you know you wanted to be a scientist?
 - a. Scientists discover their interests at all ages. Portraying this wide range is useful for students who are still exploring their interests, and validates those who already identify as scientists.
3. Tell us about the paths that led you to your current job.
 - a. As scientists, we take a variety of paths to our current jobs. Showing students this diversity is important, to counter the expectation that the path is straight.
 - b. Other career paths or interests you explored are helpful to share here with students
4. What is it like being a scientist who identifies as [fill in the blank]?
 - a. BioGraphl’s goal is to increase representation in classroom curricula of scientists from historically excluded groups (HEGs). With this goal in mind, select whatever identity(ies) you are comfortable with sharing as a public figure.
 - b. To avoid having viewers of your interview feel like your social identities are being ascribed to you by the interviewer, we suggest either (1) mentioning your identities in your responses to earlier questions in the interview (so that your interviewer can refer to that response when asking you this question) or (2) providing your interviewer with a link to an article or website where you discuss your identity (so that they can refer to it when asking you about your identity).
5. Tell me about a moment when you felt like you really belonged in the field of science.
 - a. Before answering this question, consider what belonging means to you.
 - b. This “moment” can be a single moment/event in time or something that happens repeatedly that reminds you that you belong.
 - c. No moment is too big or too small.

Optional interview questions

Strongly suggested questions

6. What is a typical day like for you?
 - a. Try to match the terminology used to the level of the class; be mindful of defining any jargon that is used.
 - b. The day-to-day activities of a scientist can help a student envision their career in science. This is useful for both students who are still exploring their interests, and those who already have decided on a career in science.
 - c. Consider including activities from both your work and personal life, if you like. Including hobbies or other interests outside science helps students relate to scientists as people.
7. How do you balance work with other interests?
 - a. We think it is important to share the variety of ways that scientists try to have work-life balance, alleviate work-related stresses, and overcome burn out.
 - b. Including hobbies or other interests outside science helps students relate to scientists as people.

Other potential questions

8. Where did you grow up, and what was it like growing up there?
 - a. This response could be where you share the social identity you'd like to highlight in this interview.
9. What keeps you motivated to do research?
 - a. Sharing your motivations and how you cultivate your resiliency can help a student envision a long-term career in science. This is useful for both students who are still exploring their interests, and those who already have decided on a career in science.
10. What is the most important advice you would give me?
 - a. You can choose the audience for your advice. Some options are young scientists, students, the general public, and other career scientists.
 - b. Match your advice to your audience. For example, academic advice for students, career advice for young scientists, or the importance of science literacy for the general public.
11. What do you do if you have questions about how to analyze your data?
 - a. This could be a moment to demonstrate how science is practiced as a collaborative endeavor. Your response can also help counter the expectation that a scientist works independently.
 - b. Good moment to discuss your ongoing professional development or peer review processes, etc., to demonstrate that a single scientist isn't expected to know all the answers, their expertise is always growing, and they can ask for help when they need it.