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PERSPECTIVES

A practical guide to graduate school interviewing for historically excluded individuals

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INTRODUCTION

Congratulations! By submitting graduate school applications, you have reached a major milestone on your path to an advanced Science Technology, Engineering, and Math (STEM) degree. In 2021, there were ~2.4 million applicants to graduate programs, representing an 8.7% increase over 2020 (1). For historically excluded individuals, the percent change in enrollment from 2020 to 2021 was ~9%, suggesting at minimum, they represent 9% of all applicants (1). With rising applicants, distinguishing yourself during the interview will be key to gaining admittance into your dream graduate program. Here, we provide practical tools to help you prepare for and navigate successful graduate school interviews. Historically excluded individuals face many challenges that prevent them from obtaining higher education, including the lack of strong institutional commitments to mentoring, diversity, inclusion, and equity (2–4). As such, there is a dearth of Black and Latin scholars in STEM disciplines, including cardiovascular physiology. Thus, while this guide is intended to help them, it is relevant to all applicants.

PREPARING FOR THE INTERVIEW

After applications are submitted in November and December, it typically takes 2–4 wk for a committee to evaluate and select candidates to invite for interviews. Hence, interviews usually occur during the following January to March. Use the intervening weeks between the interview request and the actual visit to prepare effectively. What separates "good" interviewees from "exceptional interviewees" is the level of preparation and specifically the ability to discuss one's research interests and prior research confidently and clearly. Thus, it is critical that you adequately prepare for your interview by researching the graduate program and practicing your answers to anticipated questions.

Research Potential Mentors

Principal investigators (PIs) are the faculty mentors and the individuals that formulate research programs and define the research portfolio of their respective departments. They are the most important people to research. Most laboratories have a website where you can learn about their research interests and ongoing projects. Ultimately, you will conduct your graduate studies in one of the laboratories so you will establish a very close relationship with the PI who will serve as both a scientific advisor and a mentor to shape your career.

Therefore, for each interview, you want to be familiar with several different PIs and their research areas and be able to participate in high-level and broad discussions (Fig. 1). You want to be more knowledgeable about the research of PIs/laboratories that you are interested in joining so you can discuss how your experience and interests may complement their existing research program. If you are only interested in working with one PI, it is still important to do research on

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other PIs as this will help relay your general knowledge base of science, collegiality, and enthusiasm for science and the graduate program to your interviewers.

Collecting all this information can be daunting; thus, we recommend organizing all your research into one notebook. Highlight only important information and keep your notes concise and focused on the big picture. It is beneficial to print out the research page that summarizes research interests or projects (if available) and/or one to two abstracts from recent publications for faculty that you may be meeting or with whom you are interested in working. Take notes on how your interests relate, as well as scientific or other questions concerning their work. If you have an interest in their work but do not fully understand a concept or an aspect of the science, please raise those questions during the interview as it can help facilitate discussion, as well as reflect your authenticity and perspective.

Research the University, Department, and Program

It is also important to understand the institutional and departmental landscape (Fig. 1). Look into your interviewing department and program websites for their self-assessments. Do they describe their department as basic research driven or translational? What are their research priorities? What university-specific initiatives, institutes, and centers define their research landscape? What is new or what has been long established? It may be of particular interest for historically excluded candidates to learn about the university's diversity, equity, and inclusion commitment and resources, such as their office of inclusion and the faculty and staff that serve there. This is great information to have both for demonstrating your scientific and professional preparedness, as well as for helping you make your decision.

Practice Interviewing

The formal interview will center on candid one-on-one discussions between you and several interviewers with the goal of understanding you as a person and your potential and fit as a future graduate student. Thus, the most valuable and practical way to prepare for an interview is to conduct mock, or practice, interviews with other people (Fig. 1). Lean into your network and identify mentors, colleagues, or friends with different levels of expertise and familiarity to help you practice answering the example questions and prompts provided in Table 1. These questions cover four key areas that you may be asked during your interview. When practicing, be honest and authentic with your answers. Do not misrepresent yourself. It is likely that the person interviewing you is familiar with your application, and the information you provide should augment and be complementary to the information in your application. While admitting you are not sure of something is acceptable, making things up should never happen. Answer questions in detail and cite specific and relevant examples when appropriate. After each mock interview, get feedback from your practice partner and incorporate any lessons learned into your discussion strategy. Finally, consider recording yourself during mock interviews to help you identify areas where you can be more articulate and specific, or even to check your nonverbal cues. Helpful resources that can aid in uncovering your motivations for pursuing graduate training, as well as identify your strengths and weaknesses, are provided in Table 2.

Seek guidance from mentors.

As detailed by Marshall et al. (5), mentors are essential in preparing one for future scholastic or professional ventures. Effective mentors are able to equip mentees with communication skills that relate to both expert and lay audiences that will help guide them through the interview (5). This is a time to use your mentoring network to give you critical feedback, ask tough questions, and prepare you for a successful interview.

Prepare for everything.

Although the interview should not have inappropriate or uncomfortable questions, should these types of questions arise unintentionally or from well-meaning inquiry or discussion, be prepared to respond courteously and professionally. It is best to not be reactive but kindly respond

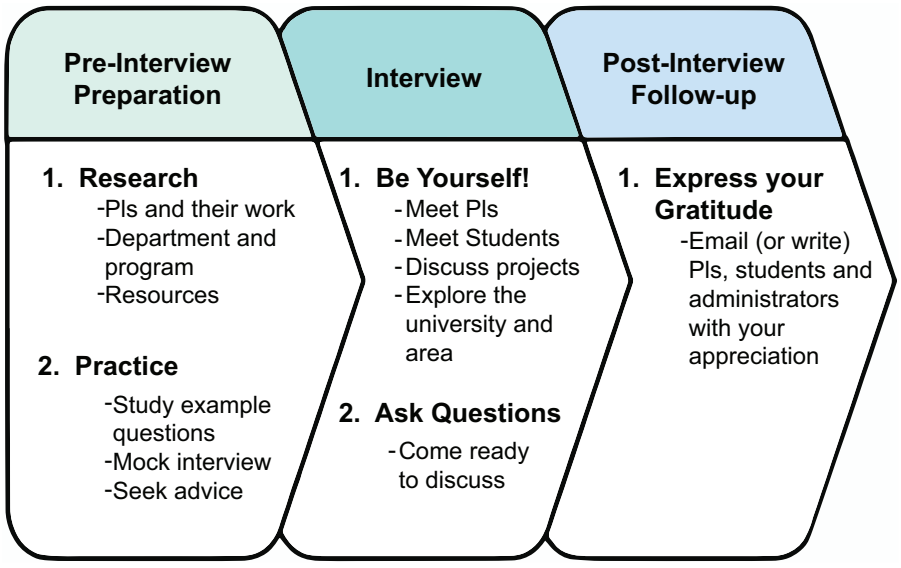

Figure 1. Overview of graduate school interviewing process and factors to consider when preparing. PI, principal investigator.

Table 1. *Practice questions candidates should be prepared to discuss*

Personal Characteristics	Academic Experiences and Skills	Problem-Solving and Leadership Skills	Goals
• Tell me **about yourself.**	• What was your **favorite undergraduate course** and why?	• Can you describe a problem you have **had to overcome** and how you resolved it?	• Why do you need a Ph.D. to accomplish your **career goals**?
• What are your biggest **strengths**?	• Describe your **current research** project.	• How do you **manage stress**? Can you provide an example?	• What **drives your interest** in science?
• Describe your **weaknesses**.	• Why did you choose to apply to **our program**?	• How do you **manage your time**? Can you provide an example?	• What **excites you** about a career in science?
• What **hobbies** do you enjoy?	• How have your previous experiences **prepared you for graduate study** in our program?	• Describe a time you **took the lead** on a project.	• How does our specific graduate school fit into your **long-term career plans?**
• How would your **professors describe you**?	• Tell me about your **experience in the field.**	• Describe your **leadership and outreach** experience.	• What would the **crowning achievement** of your career be?
• Why are you interested in **this program**?	• What are your **future research interests** and which faculty are you interested in working with?	• How do you **handle conflict** with others?	• What are your **career goals** in 5 years and in 10 years?

in a way that does not cause conflict and that you are uncomfortable sharing such information. Examples of inappropriate questions include those that focus on a person's race, creed, religion, gender, sexual orientation, or marital status (Table 3).

DURING THE INTERVIEW

The main purpose of the interview is to assess if you can effectively communicate your previous research experiences; convey your curiosity, enthusiasm, and competence; and learn about how the graduate school program would support and prepare you for a successful career. Though interviews may be intimidating, do not forget that the evaluation is mutual. You too are assessing whether the opportunity to enter a particular program would be a worthwhile endeavor for you.

Anticipate the Format

Interviews may take multiple formats including phone or virtual sessions, as well as in-person visits. For virtual interviews, which is a common first step, securing a quiet space with a reliable internet connection is vital (6). Ensure you have sufficient lighting, an adequate distance from the camera, and an appropriate background.

Navigating In-Person Visits

In-person interviews are critical for you to gain a better sense of whether the current faculty and students in the graduate program, the program itself, and the city, will be a good fit for you. An in-person visit will typically take place over the course of 3 days. The first and third days are mostly reserved for traveling but may include a scheduled welcome dinner (*day 1*) and a farewell breakfast (*day 3*)—usually these meals occur with the other prospective students that are visiting and sometimes current graduate students as well. A typical itinerary on *day 2* may include one-on-one meetings with different faculty members, campus and area tours, facility tours, and tours of potential graduate housing. There may also be some unstructured socialization with current students and postdocs.

Ask Questions

The interview may be the only time you formally connect with individuals in a particular program, so it is important for you to get practical and relevant information to help make

Table 2. *Resources for self-assessments*

Test Name	Brief Description
StrengthsFinder	Consists of 34 themes: Individuals are given a report that highlights their top five strengths, as well as strategies for applying them.
Hogan Personality Inventory	Evaluates an individual's personality traits, strengths, and weaknesses, using the Big Five traits; openness, conscientiousness, extraversion, agreeableness, and neuroticism
Keirsey Temperament Sorter	Categorizes individuals into four temperaments: Guardian, Artisan, Idealist, and Rational
DiSC	Measures an individual's behavioral style, with a focus on four main styles: dominance, influence, steadiness, and conscientiousness.
Enneagram	Categorizes individuals into nine distinct types, based on their core motivations and fears.
NEO Personality Inventory	Measures an individual's personality traits, including neuroticism, extraversion, openness, agreeableness, and conscientiousness.
HEXACO Personality Inventory	Measures six traits: honesty/humility, emotionality, extraversion, agreeableness, conscientiousness, and openness to experience.
Hogan Personality Assessment	Evaluates an individual's personality traits, values, and behaviors, using a range of personality scales.
VIA Character Strengths Assessment	Measures an individual's character strengths, identifying their top strengths and highlighting areas for development.
Self-Directed Search	Evaluates an individual's personality traits, interests, and values, providing career suggestions.

DISC, dominance, influence, steadiness, compliance; NEO, neuroticism, extraversion, openness; HEXACO, honesty-humility, emotionality, extraversion, agreeableness, conscientiousness, openness to experience; VIA, values in action.

Table 3. *Examples of inappropriate questions and how to respond to them*

Examples of Inappropriate Questions	Examples of Responses to Inappropriate Questions
• What is your **religion** and will it impact your work? • Why are you considering graduate school at your **age**? • What is your **sexual orientation**? • Are you **married** and do you have **kids**? Will your family want to move here? • Do you think that you have a better chance at getting into this graduate program because of **affirmative action**? • Are you a **US citizen** and will you be able to compete for certain grants?	• "My candidacy should not be judged on this basis, which is not a determinant of my potential success." • "I do not feel comfortable answering this question." • "I do not think this question is necessary to evaluate my candidacy."

your decision. Ask current students about living expenses, the usefulness of required courses, qualifying exams, and their future career goals. Ask faculty about their expectations of students, funding opportunities for potential students, and the current jobs of their previous trainees. These and other sample questions are listed in Table 4. Responses to these questions can reveal the well-being and support you would receive as a student in the program or working with a particular mentor.

Maintain Professionalism

For in-person interviews, remember that all events are considered part of the interview, and your evaluation is based on your overall interactions. We recommend you dress professionally and appropriately for the events of the interview, but you are also free to dress in a way that reflects your unique identity. It is particularly important to remember your professionalism during social events in which there is often drinking. When it comes to consuming alcoholic beverages, use your best judgment, consume with care, and remember that the interview is not a party.

AFTER THE INTERVIEW

Although not required, it is good practice to send a thank you note within a week of interviewing. You may consider sending a handwritten note but be aware of postage time.

Table 4. *Example questions to ask potential graduate schools, PIs, and previous and current students*

Questions to Ask Departmental/Program Interviewers	Questions to Ask Potential Labs/PIs	Questions You Should Ask Previous and Current Students
• What is the format of your **qualifying exam** and what is the general success rate? • How are **mentoring and advising relationships** established? Are there training sessions for mentors each year to update on how best to mentor students? • Where are recent **alumni employed**? • How is the university and/or department engaged in **fostering diversity and inclusivity**? • How much **coursework** is required for the Ph.D. program? Are we allowed to take coursework from a different program? • Do most students live near campus? What is it like to **live in this area** as a graduate student? Are there any current students you can connect me with? • What is the average **time to graduate** in this department/program?	• What opportunities do you offer regarding **career development**? • What tools are used to formalize and address individual **career and professional development goals**? • Generally, what are the **publication expectations** for students in your lab? • What is your **mentoring philosophy**? • What is your **mentoring and advising** format within the lab? Does the PI do most the advising and training or are postdocs and students involved? • How do you support trainees with **non-academic career goals?** • Do you have any internal **funding opportunities**? Do you have any internships that lab members may participate in? • What is your **balance between mentoring and research-focused meetings**?	• What is the **qualifying exam** like? • Are the **classes** relevant and helpful to your thesis research? • Does the **stipend** enable you to live alone in this city or live comfortably? • Does **student health and the health insurance** meet your needs? • What do you do for **fun**? • Does your lab or the graduate school support you in **attending research conferences**? • How did you select your **mentor and committee members**? • Is there a **career center** here and do they support students' nontraditional (i.e., nonacademic) routes? • How are student concerns and **conflicts handled** in the department/program and what resources are available for student **mental health**? • Does the graduate program permit l**eave for personal matters or health concerns**? • Can I request your **contact information** if I have future questions?

PI, principal investigator.

Remember, a quick personalized email will go a long way. Here, social media may also be used to connect with individuals who left a lasting impression and allow you to remain in touch for potential collaborations regardless of whether you are admitted to the program (7). However, before connecting with any faculty, make sure that your online presence represents you in the best light (6, 7). A summary of the information to guide you through the entire interview process is outlined in Fig. 1.

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AUTHOR CONTRIBUTIONS

E.R., A.D.V., C.Y.T., and A.H., Jr. conceived and designed research; E.R., S.B., H.K.B., B.J.M., C.A.H., and C.Y.T. performed experiments; E.R., S.B., B.J.M., C.A.H., and C.Y.T. analyzed data; E.R., S.B., B.J.M., C.A.H., and C.Y.T. interpreted results of experiments; E.R., S.B., C.A.H., C.Y.T., and A.H., Jr. prepared figures; E.R., S.B., H.K.B., A.M., B.J.M., P.R.-A., C.A.H., C.W., A.D.V., S.M., S.D., C.Y.T., and A.H., Jr. drafted manuscript; E.R. and C.Y.T. edited and revised manuscript; E.R., S.B., H.K.B., A.M., B.J.M., P.R.-A., C.A.H., C.W., A.D.V., S.M., S.D.,C.Y.T., and A.H., Jr. approved final version of manuscript.

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