

# In the Hot Seat: Two Experienced Consultants Discuss Hiring Statisticians

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When interviewing for a job in statistics, what do you think the interviewer is interested in learning about you? Do you approach the interview as though you are defending a thesis or taking a high-stakes exam? Or do you see it as a conversation between two people trying to find the right fit? The key to landing the right job is putting yourself in the shoes of the interviewer, determining what qualities are key to succeeding in their workplace, and then tailoring your résumé and interview responses accordingly.

Erin Tanenbaum of the ASA Committee on Applied Statisticians recently interviewed two hiring managers in statistical consulting to find out what it takes to succeed. Some of their answers may surprise you.



Batchner

Mary Batchner, executive director of Ernst & Young's (E&Y) Quantitative Economics and Statistics Group, and Laura Schweitzer, director in PricewaterhouseCoopers' (PwC) National Economics and Statistics Practice, are seasoned statisticians who have hired numerous master's and PhD statisticians over the years. Although similar, their recruiting patterns do differ.



Schweitzer

**Batchner:** "We're not a huge group, so in the past year, we've only hired one, maybe two, [advanced degree] statisticians, but we are in the process of recruiting two statisticians right now. In addition, there is the normal recruiting process

for about four staff-level quantitative types, but not specifically statisticians, as not all undergraduate programs offer a statistics major."

**Schweitzer:** "We have probably hired an average of three people per year. [Of that,] I would say about 25% with a PhD, 60% have a master's, 15% are working on a master's, but currently have a BA."

Aside from specific statistical qualities, showing a bit of personality goes a long way in many interview situations.

**Schweitzer:** "You can't help getting away from personality. After all, you are hiring someone to work with you. So I'm thinking, 'Would I turn to this new person and say "please do this"?' I'm looking for flexibility, confidence. I'm trying to see ... do we gel? Do we have a personal connection? I'm not talking about chit-chat. It can be a shared experience or something statistical. But, can they connect with me through our discussion? This is very important."

**Batchner:** "At the interview stage, I look for poise; I look for eye contact. It's always good if they have a little humor. Not that it is self-deprecating humor; it shows that they are comfortable enough, poised enough, relaxed enough to offer a little funny remark when you're struggling for words or something like that."

## GPA and School

Unlike bachelor's-degree holders, GPA is less important for statisticians with a master's degree and practically irrelevant for PhD candidates.

**Schweitzer:** "I don't have a cut-off for GPA, but if someone had a low GPA, I'd ask them about it. If it is a PhD candidate, I don't look at the GPA at all because it is assumed that they are going to know their stuff."

**Batchner:** "If people get into and pass grad[uate] school, their GPAs tend to be pretty good. I think they would drop out if they failed out. It seems to be A, B, or fail. So, I haven't seen a GPA yet at the grad level that I thought was a deal breaker."

The institution also does not matter, although both agreed international degrees may be scrutinized more.

**Batchner:** "You know, we've had good people from all kinds of schools. I haven't seen better or worse based on the school. A talented person can perform well in any program and come out and succeed."

“Those with the social statistics degree can probably explain things a little better, but in the end, we need people to be able to grow to a point where they can deal with the real-world problems.”

**Schweitzer:** “We did just hire someone with an international degree. Although I will say that this is the exception, rather than the rule. I feel comfortable interviewing [international degree holders, still] we might think a little bit more about the reputation of the school since we have less experience with those schools.”

### The Foundation: Statistical Background

For both Batcher and Schweitzer, statistical training is key.

**Batcher:** “The first thing I screen for is [whether] they have the right technical training, the right statistical training, and the fundamentals. I also am looking for ‘the more the better’ because, certainly, we would like them to have some modeling exposure, but the solid Mathematical Statistics 1, Mathematical Statistics 2 shows that they have the fundamentals. If they have done well in calculus [then that exemplifies their mathematical skills]. A lot of people come in with courses with statistics, but many are not math based. So, I like to see that they’ve had the math up to a certain base. This may be a holdover for me from my days in the government. I’m most interested in the person with a statistics with the math[ematics background, instead of a statistics for social sciences background]. Those with the social statistics degree can probably explain things a little better, but in the end, we need people to be able to grow to a point where they can deal with the real-world problems.”

**Schweitzer:** “First thing we are looking for is the appropriate educational training and

background. Within statistics, there are a lot of different things you can do, and some of them we do here and others we don’t. So if someone has a real interest in experimental design, I want to know that because we just don’t do that here. I want to know where their interest lies and how deep their technical skills really are. For example, some people say that they have regression experience, but when you poke a little deeper into what they were doing, they don’t actually understand the analysis that they did. Instead, they took a higher-level approach.”

Tanenbaum asked, “How do you dive deeper on a skills set?”

**Schweitzer:** “For example, with regression modeling, I want to know if they did any model validation. Did they do any diagnostics with their model? You know, I have interviewed people who have run a regression analysis, but never did any diagnostics. To me, that really says that they didn’t really know that much about what they needed to do.”

### Data Analysis

Both PwC and E&Y’s practices rely on working with large data sets. As such, SAS or other database programming skills are important.

**Schweitzer:** “We have hired people who don’t have any SAS experience. [In those cases,] we like to see that they have at least worked with large data through some other package. [When reviewing their skills,] I ask about the size of the data sets they have worked with. If they are still in school, chances are they have only worked with fake data, which you know is relatively nice and clean data sets. A big piece of the job is getting your data ready for the analysis, and a less amount of time is spent actually doing your analysis.”

**Batcher:** “I also look for internships and work experience where they’ve learned SAS or other computing packages. Most everyone puts down that they know SAS, but sometimes that means they have taken a class, the instructor has given them code, and they altered the code slightly and ran it. But if they’ve used SAS and actual[ly] written the code themselves—in a real environment —[it] is a plus.”

Both Batcher and Schweitzer mentioned that statistical programming skills are less important with management positions.

**Schweitzer:** “As you move up, [database programming] largely becomes supervisory. For example, I do not have SAS installed on my laptop. I still need to understand the day-to-day analysis, but working with the data is something that I would delegate.”

## Communicating Statistics

Batcher and Schweitzer both find communications skills to be a make-or-break characteristic in the consulting world.

**Batcher:** “Our clients need to understand [the candidate]. Clients can become very frustrated if they cannot understand the statisticians. When we communicate statistics, there are two things I want to make sure doesn't happen. One is showing off and using too much statistical jargon to our clients. The second thing is adding too many details [when describing an analysis many statisticians say,] ‘Well, first I did this, and then I did this, and then ...’ I prefer a two-sentence explanation or overview in language that would be clear to our clients. In fact, for many of our clients, this is sort of their first encounter with statisticians. So, candidates' explanations should be enough that they get an intuitive grasp, but we don't want to drag our clients through the weeds. [Statisticians] love to throw out ‘this or that, but that would then violate the statistical assumption that blah blah blah,’ which is totally meaningless to the client. So, it seems like we, as statisticians, speak this mystical language and therefore you, as a client, are dependent on me. And that's what I consider to be showing off. You can explain the details, but you need to say it in a different way, such as, ‘Well, we can take a couple different approaches and they each have their own set of mathematical assumptions ... we'll find the best approach which will meet all of the assumptions for this project.’”

**Schweitzer:** “I'm looking to see that they understand the results of the analysis and understand the implications of the results. If they worked on an interesting project, I'll always ask what the outcome was. I sometimes think that statisticians stop and don't really take that next leap to show what the analysis means, which is important for consulting. It's

not just what test did you apply, but also what was the outcome and what did it mean for your employer or client, and what actions were taken as a result of your analysis?”

**Batcher:** “Sometimes I might just ask them to explain [a statistical concept like what is a standard deviation]. Sometimes I'm surprised; I'm not sure if it's the nervousness about the situation, but ... they stumble around quite a bit. I think that when people get a little flustered, it might be smart for them to take a deep breath and collect their thoughts instead of just jumping right in without thinking the answer through a bit. Now, if they cannot answer the question, it's not a deal breaker, but if they can do it, it's a plus. I guess we've all been in situations where we botched a simple question. So if everything else is stellar, it won't kill them [but pausing before rambling may increase their chances of success].”

Even before the interview, Batcher and Schweitzer both look for evidence of communications skills.

**Batcher:** “I look at the cover letter. I look at the résumé on the coursework and sometimes you can tell that they took courses that included writing and that they participated in activities. Also, [work in teaching or] consulting labs are good.”

**Schweitzer:** “I like to see evidence that a person can talk to a client. So whether that is having some kind of extracurricular activities or work with the community, you know something that shows that they are not just interested in doing their statistical work, because when you are in consulting, talking to a client is one of the most important things you need to do. Yet, finding someone with those skills can be difficult.”

## Moving from Analyst to Manager

Both PwC and E&Y have a solid hierarchy that starts with analysts/associates/staff and moves up similar to the following: senior associate, manager, senior manager, director, and partner. Batcher and Schweitzer's groups tend to hire primarily associates through managers, since other positions require a large sales portfolio. Tanenbaum, Schweitzer, and Batcher discussed how Schweitzer and Batcher's search changes based on work experience or level.

**Batcher:** “Most of what I’ve been thinking about is right out of school. The candidate is finishing in a month or two. They have a couple internships; they have their transcripts. We have an example of a class project; we have their résumé and cover letter and we are looking for three things: (1) a solid foundation, (2) the ability to communicate, and (3) less about specific knowledge. What I am looking for changes at the management rank. At entry management level, do they know how to help someone when they get stuck? At the next level, I want to know that they know how to guide a bigger project. They don’t have to run giant projects; they may just be managing their own work, but they need to know how to pay attention to deadlines or coordinate with clients and take the lead that the project goals are met, including the timelines.”

Schweitzer’s group hires fewer candidates straight from school.

**Schweitzer:** “I like to see a candidate who has worked in business, since we do business consulting. I think, personally, the thing about coming right out of school is that it takes a little while to adjust and to understand what it means to work, and how you interact with people in the workplace is part of getting up to speed when you first start. So, sometimes if you get someone who has already had that experience, then it allows them to really hit the ground running when they get to you.

“At entry level, I’m looking for time management. How do you juggle multiple deadlines? How do you juggle projects? With more experience, I’m looking for the ability to work with staff to get things done and also to develop the staff so that they can continue to progress in their own careers. I’m also looking for the ability to learn new things [at all levels]. For someone who has worked on the job, how did they get up to speed on a new project? How did they learn new software? I’m looking to see how they learned those new tasks.

“In addition, as you get more experience, you do less hands-on and start taking on more big-picture work.”

Tanenbaum asked, “What is big-picture work?”

**Schweitzer:** “How do I answer the client’s question? What analysis is appropriate to answer their question? What’s the right way to answer this problem? Then, the ‘how to do’ this analysis is left to lower-level staff.”

Statisticians also have struggles in the consulting world.

**Schweitzer:** “[At the management level,] I think that a lot of statisticians shy away from working with clients. I actually had someone tell me that they went into statistics because they didn’t want to deal with clients. So, finding someone who not only can be accomplished in statistics, but they also can communicate their work in a way that a client can understand, is very important.

“Another thing I see that is missing is statisticians finding the business purpose of the analysis. So, I think that most statisticians need a little bit more business training, which is why we tend to hire people with work experience. Statisticians often know how to do an analysis, but don’t know how that analysis will actually help the client solve their problems. In addition, I think that a consulting environment can be very stressful, so I ask how people handle themselves under stress. Some people like to do the same thing every single day and others like to have a little variety. Figuring out what type of position the candidate is looking for is really important.”

**Batcher:** “One transition that is often hard for statisticians is to give up the technical work and do more and more project management and people management. So, that is something that I want to at least talk to people about. ‘Are you aware that as you become a manager, most of the work should be done by people with lower billing rates and a lot of the heavy lifting technically on projects gets pushed down to the staff and senior level because their billing rates are not so high?’

“I think it’s important that they be made aware that as you move into management, your technical abilities are used less and less as [they are] replaced with the role of the guide. I think this is true almost anywhere you work. Since this way of thinking is a change for people, the question becomes will they still be happy with the new role.

“There are a lot of statisticians out there who are very comfortable doing ‘neat’ analyses. For them, making that transition to all these other things [is] not nearly as rewarding, yet they need to find ways to make nontechnical tasks rewarding. And that is often with helping more junior people get where they need to go. There is a lot of discomfort out there as people know

they are very good, that they can do it the best way, the correct way, and then they have to let someone else do it while they only review it and give the others guidance. Letting go is sometimes a difficult transition.”

### Master’s vs. PhD

It became clear to Tanenbaum that the choice of degree is completely personal, as both are an asset in consulting. Batcher and Schweitzer’s teams are both staffed predominately with master’s degree holders.

**Batcher:** “[With a master’s degree,] I like to see a focus on applied statistics and real-world applications. Often times, they have gone for a master’s instead of a PhD because it gets them very quickly into the real world and real-world problems. We consciously have a mix of master’s and PhDs in our group.

“In our world, a person’s degree matters as much for credentials as it does for anything else. Because we sell our credentials, it is nice in a litigation setting if you can say this person has a PhD and a great deal of experience in a particular area. Then, it’s an easier sell. Not that this is the bulk of our work, by any means. In

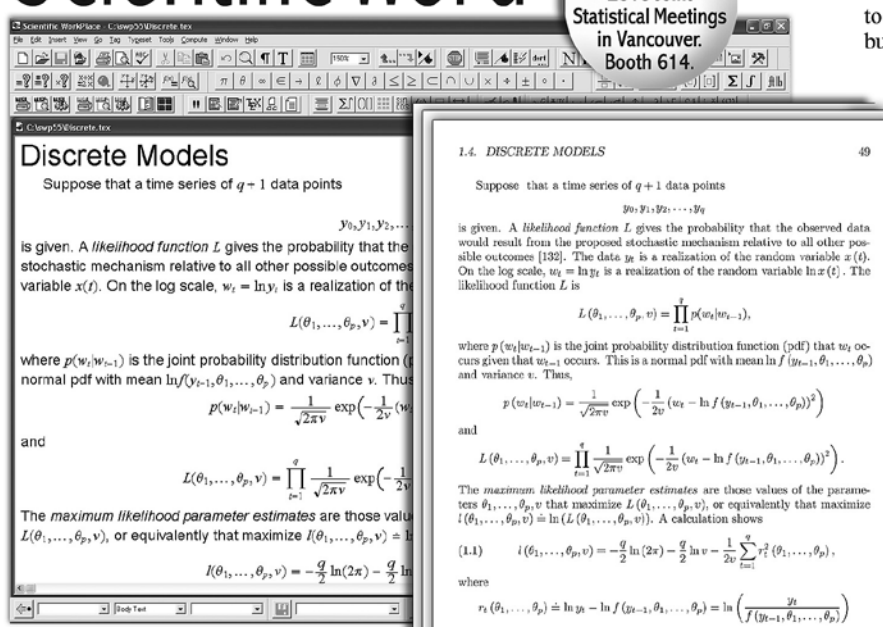
our world, the funny thing is our master’s candidates have been more experienced. So, they have been the managers and the PhDs have been the new people.”

**Schweitzer:** “The master’s [candidates] are usually more applied. When I look at a PhD candidate, I often take for granted that they have the technical skills, so I’m often seeing if they can translate the theory into the business. [PhDs] often get caught up in the theory. Since we are working with real-world data, it is not always going to follow all of the assumptions that the theory will follow, but we still have to give a result to the client. Sometimes, I think that PhDs are more rigid in following those rules. Not to say that theory is not important. Still, how you work with real-life data in real-world situations is a theoretical problem.”

So, as you prepare for your next job, start thinking about the interviewer’s point of view. In the end, a job search is about finding the right match—interviewers are trying to find someone with specific qualities and employees are trying to find a rewarding career. Determining the qualities to emphasize in a résumé or interview may make landing your next job that much easier. ■

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