

BEFORE THE  
NATIONAL LABOR RELATIONS BOARD

<p>In the Matter of:</p> <p>TRUSTEES OF THE UNIVERSITY OF PENNSYLVANIA,</p> <p style="text-align: center;">Employer,</p> <p>And</p> <p>GRADUATE EMPLOYEES TOGETHER-UNIVERSITY OF PENNSYLVANIA (GET-UP), a/w AMERICAN FEDERATION OF TEACHERS,</p> <p style="text-align: center;">Petitioner.</p>	<p>Case No. 04-RC-199609</p>
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The above-entitled matter came on for hearing pursuant to Notice before MARY R. LEACH, Hearing Officer, at the National Labor Relations Board, Region 4, 615 Chestnut Street, Philadelphia, Pennsylvania, 19106, in Hearing Room 3, on Wednesday, June 22, 2017, at 9:00 a.m.

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1			<u>I N D E X</u>			
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3	<u>WITNESS</u>	<u>DIRECT</u>	<u>CROSS</u>	<u>REDIRECT</u>	<u>RECROSS</u>	<u>VOIR DIRE</u>
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5	Steven Fluharty	1096	1142	1173	--	--
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7	Kim Hoftiezer	1178	1183	--	--	--
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9	Christopher Murray	1187	1213	1256	1258	--
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12	Patricia Rose	1261	1272	--	--	--
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1		<u>E X H I B I T S</u>	
2	<u>EXHIBITS</u>	<u>IDENTIFIED</u>	<u>RECEIVED</u>
3	EMPLOYER'S		
4	E-39	1100	1106
5	E-40	1107	1122
6	E-41	1122	1130
7	E-42	1130	1132
8	E-43	1132	1134
9	E-44	1138	1139
10	E-45	1191	1191
11	E-46	1192	1195
12	E-47	1195	1231
13	E-48	1263	1272
14	E-49	1266	1272
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1 P R O C E E D I N G S

2 (Time Noted: 10:07 a.m.)

3 HEARING OFFICER LEACH: On the record.

4 The Employer can call their next witness.

5 MR. JOHNS: We call Dr. Steven Fluharty.

6 HEARING OFFICER LEACH: Good morning.

7 THE WITNESS: Good morning.

8 HEARING OFFICER LEACH: How are you?

9 THE WITNESS: Fine, thanks.

10 HEARING OFFICER LEACH: Good. Can you say and spell your  
11 first and last name for the record, please?

12 THE WITNESS: Steven Fluharty, F-L-U-H-A-R-T-Y.

13 HEARING OFFICER LEACH: Is Steven S-T-E-V-E-N?

14 THE WITNESS: Correct.

15 HEARING OFFICER LEACH: Can you raise your right hand,  
16 please?

17 (Whereupon,

18 STEVEN FLUHARTY,

19 was called as a witness by and on behalf of the Employer, and  
20 after having been duly sworn was examined and testified as  
21 follows:)

22 DIRECT EXAMINATION

23 BY MR. JOHNS:

24 Q Good morning, Dr. Fluharty.

25 A Good morning.

1 Q By whom are you employed?

2 A The University of Pennsylvania.

3 Q What position do you hold at the University of  
4 Pennsylvania?

5 A I am the dean of the School of Arts & Sciences and the  
6 Thomas Gates, Jr., professor of Psychology, Pharmacology, and  
7 Neuroscience.

8 Q Before we get to those positions, can you tell us about  
9 your educational background?

10 A I was an undergraduate at the University of Pennsylvania.  
11 And through a program called the University Scholars Program, I  
12 remained to do my PhD there in Psychology. I left for a few  
13 years, went to the University of Pittsburgh for what's called  
14 post-doctoral fellowship. Returned in 1986 to join the faculty  
15 in three schools, the School of Arts & Sciences, School of  
16 Medicine, and the School of Veterinary Medicine.

17 I ran a large interdisciplinary program in Arts and  
18 Sciences for a number of years, biological basis of behavior.  
19 I then jointed the provost's office first as vice provost and  
20 then senior vice provost for research, managing the  
21 university's approximately \$900 million research and  
22 development budget. Four years ago almost, July 1, 2013, I was  
23 appointed Dean of Arts and Sciences.

24 Q Okay. I want to unpack some of what you just spoke about.  
25 First your faculty appointments, is your primary faculty

1 appointment within the School of Arts & Sciences?

2 A It is.

3 Q That's in the psychology department?

4 A Correct.

5 Q You have other faculty appointments as well in other  
6 schools. I think you mentioned the veterinary school as well?

7 A Yes.

8 Q Describe that, please.

9 A The veterinary school has a department when I was first  
10 recruited called the Department of Animal Biology, which was a  
11 comparative medicine department. So it was one that developed  
12 animal models for human diseases and it was quite common for a  
13 variety of different PhDs that worked on things like the  
14 nervous system, which I did as a neuroscientist, to have  
15 appointments there. They were instrumental in recruiting me to  
16 the University of Pennsylvania.

17 Q You also said in the medical school. Within the medical  
18 school do you have appointments within any graduate groups  
19 within the BGS program?

20 A Yes.

21 Q Can you describe that?

22 A My faculty appointments in medicine are the same as my  
23 graduate group appointments and those are pharmacology and  
24 neuroscience, both part of biomedical graduate studies.

25 Q Now I guess you said that about four years almost, July 1,

1 you're coming up on, you've been Dean of the School of Arts &  
2 Sciences at the university. Can you generally describe your  
3 responsibilities in that role?

4 A Sure. The School of Arts & Sciences is amongst the  
5 largest schools at Penn, second only to the medical school and  
6 that's largely because of the integrated health system the  
7 medical school appears very, very large. We have approximately  
8 520 faculty spread across 27 departments that span all areas of  
9 the humanities, the social sciences, and the natural sciences.

10 In the educational realm, we are the largest undergraduate  
11 school. The College of Arts & Sciences has about 6,500  
12 undergraduates in it and the graduate division, about 1,400  
13 doctoral students. There are also students enrolled in other  
14 types of programs, continuing ed programs, masters programs.  
15 And so in the end, Arts and Sciences as a whole is about 10,000  
16 students or almost half of all the students at Penn.

17 Q As dean of SAS, to whom do you report at the university?

18 A I report to the provost, the chief academic officer.

19 Q Who are your direct reports within SAS?

20 A I have what we call divisional deans. I mentioned 27  
21 departments. The departments are clustered by sector,  
22 humanities, social sciences, natural sciences. Each one of  
23 those has an associate dean that reports directly to me. In  
24 addition, the graduate division has an associate dean that  
25 reports to me. The college had a college dean because it's the



1 largest undergraduate school at Penn that still reports to me.  
2 That's largely the academic side of it. Then of course there  
3 is vice deans that are more on management, including vice dean  
4 for finance and administration, the vice dean for liberal and  
5 professional studies which is our continuing education, a vice  
6 dean for development/alumni relations.

7 Q Within the School of Arts & Sciences, do you have an  
8 organizational chart that describes that structure?

9 A Yes.

10 (Employer's E-39 identified.)

11 BY MR. JOHNS:

12 Q Dr. Fluharty, we've shown you a document that's been  
13 marked as Exhibit E-39. If you could just take a moment to  
14 look at this and then tell us if you recognize this document?

15 A I recognize it. It is our organizational chart which we  
16 share with the provost office, with the president's office,  
17 with our board of overseers, and then through them to the  
18 trustees.

19 Q If you look at this, going from your name which is in sort  
20 of the center of this document I would say, moving up, you said  
21 you report to the provost, is that correct?

22 A Correct, a direct report to the provost.

23 Q Is that individual Wendell Pritchett?

24 A Not technically, July 1st.

25 Q Yeah. When will Mr. Pritchett take --

1 A The parting provost, Vince Price, will become president of  
2 Duke on July 1st. Wendell, I met with him yesterday, he is in  
3 the office so I think that we're maybe a tad ahead of  
4 ourselves, but it's very clear who is now during this  
5 transition serving as provost.

6 Q Regardless of who serves, whose name is in that particular  
7 box, in your role as dean of SAS, you report to the provost.

8 A Correct.

9 Q And the provost is a direct line of report to the  
10 president?

11 A Yes.

12 Q And the president is accountable to who?

13 A The trustees.

14 Q Now if you look at this chart down more towards the left  
15 below you as well, the boxes below you do they reflect the  
16 direct reports you were speaking of earlier?

17 A Yes. Yes, the first three I would classify as the  
18 educational deans. The next three represent the divisional  
19 deans I referred to earlier and you can see under each of them  
20 the departments that they manage. And then to the right are  
21 two of the administrative deans I mentioned, advancement and  
22 alumni relations, and vice dean for finance and administration.  
23 And with my chief of staff who is to the left of my box, who is  
24 an assistant dean, that is my council.

25 Q I want to focus on the third box from the left which is

1 Eve Troutt Powell.

2 A Correct.

3 Q Can you generally describe her role as associate dean for  
4 graduate studies in SAS?

5 A We have 34 graduate groups within SAS, 24 departments. So  
6 the difference is that there are some graduate groups that are  
7 intrinsically interdisciplinary and are not housed exactly in  
8 the department. Eve is responsible for the management of all  
9 34 of those graduate groups. And as such, she meets with the  
10 grad chairs, which is someone designated by a department or  
11 program to serve as that interface between the dean's office  
12 and the graduate students in that graduate group. She meets at  
13 least twice a year with them to go over metrics of a variety of  
14 types for the School of Arts & Sciences. She also is our  
15 representative on the Council of Graduate Deans that is a  
16 direct report into the provost's office via the vice provost  
17 for education.

18 Q You spoke earlier when you were talking about your  
19 reports, I think you might have called it dean of the graduate  
20 division within Arts and Sciences. We're talking about Eve  
21 Troutt Powell?

22 A We are. She's an associate dean --

23 Q Okay, got it.

24 A -- as a title.

25 Q Let me talk a little bit about what you just said at the

1 end there, though, which is she also has a direct report -- in  
2 addition to reporting to you within SAS, she also has report  
3 into the provost's office. Can you talk about the types of  
4 matters to which she would report to the provost's office on?

5 A With regard to graduate education?

6 Q Yes, exactly.

7 A So the provost's office, as the chief academic officer of  
8 the university, is responsible for management of doctoral  
9 education. And while the schools hire the faculty and develop  
10 the programs in which graduate students may be enrolled,  
11 degree-granting programs, in fact most issues are settled at  
12 the provost level, things like minimum stipend levels, health  
13 insurance coverage, benefits of a variety of types,  
14 recreational fees, access to resource centers like the library  
15 and the museum, which is critical for some of our graduate  
16 students. And most importantly, the Council of Graduate Deans  
17 together with the Graduate Council of the Faculties review  
18 every graduate group so that the provost is not only setting  
19 pedagogical policy and financial arrangements, but also is kept  
20 regularly informed as to how each graduate group either in Arts  
21 and Sciences or in any of the other 11 schools are managing  
22 their affairs in accordance with the policies set by the  
23 provost.

24 Q And with respect to the graduate groups on the issues you  
25 just listed, meaning the review of those graduate groups by the

1 provost's office, you said it but I want to make clear that  
2 would apply to graduate groups within all the nine schools that  
3 would have PhD students?

4 A Yes. And actually just as a point of clarification it's  
5 not entirely correct to say there is only nine schools. And  
6 the reason for that is both the School of Veterinary Medicine  
7 and the School of Dental Medicine oftentimes not counted in  
8 that nine have BGS students, so they do have students in their  
9 school pursuing doctoral education but they are clustered in  
10 the biomedical graduate studies, as are many graduate students  
11 across the campus that work on issues in the Life Sciences.

12 And even the law school frequently will have JD candidates  
13 who elect to pursue a PhD along with the JD. One instance of  
14 that for instance is a dual degree, a JD in Law and a PhD in  
15 History, which is in Arts and Sciences. So while it's easy to  
16 see the schools that I would call doctoral intense, the reality  
17 is that really all 12 schools have students involved in  
18 doctoral education.

19 Q But there are only nine schools, at least is my  
20 understanding that admit PhD students just to obtain a PhD.

21 A That's correct.

22 Q A doctorate within that program.

23 A That's correct.

24 Q Okay. Before I get to the councils that you talked about,  
25 which I want to talk about at some depth, you spoke about and

1 it's referenced as well here that there is a board of overseers  
2 at SAS.

3 A Correct.

4 Q Can you tell us what that is?

5 A Yes. So I'll distinguish it from the trustees. The  
6 trustees have fiduciary responsibility for the university and  
7 the president reports directly to them. The trustees is  
8 approximately 50 members broken up into a variety of different  
9 committees, one being the executive committee, the chair in our  
10 case, David L. Cohen, always is the chair of the executive  
11 committee and the whole board of trustees. And then there are  
12 many other boards.

13 Each school and some other units like the library and the  
14 museum have their own board of overseers. In the case of Arts  
15 and Sciences, our overseers is approximately 35 members. In  
16 contrast to the trustees, they are advisory. I use them  
17 regularly, meet with them three times a year. They have their  
18 own executive committee, which I meet with even more. The  
19 current chair of our board of overseers is Andrea Mitchell from  
20 NBC News. They are made up of people who are usually alumni,  
21 who have been very supportive of in our case Arts and Sciences'  
22 mission, and represent a great sounding board for testing out  
23 ideas particularly in a confidential manner about where we want  
24 to go, and of course they are a huge asset in our fundraising  
25 efforts because they build networks to support the core

1 missions of Arts and Sciences. Every school and as I said some  
2 of the large resource centers have their own board of  
3 overseers.

4 Q With respect to these boards of overseers, do they play  
5 any role in the administration of SAS?

6 A No direct role.

7 Q Do they play any role in the administration of any of the  
8 schools at the university?

9 A No.

10 Q Do they play any fiduciary -- do they have any fiduciary  
11 responsibility for the schools?

12 A No.

13 Q Now I take it in your position you're also familiar with  
14 the overall structure of the academic parts of the university,  
15 correct?

16 A Yes, both from my years in the provost's office, as well  
17 as my more recent years as dean of one of the largest schools.

18 HEARING OFFICER LEACH: Does the Union object to  
19 Employer's 39?

20 MS. ROSENBERGER: No.

21 HEARING OFFICER LEACH: Employer 39 is received.

22 (Employer's E-39 received.)

23 MR. JOHNS: Dr. Fluharty, I've shown you a document that's  
24 been marked as Exhibit E-40. I'll represent to the proceeding  
25 that this is a chart that we created just for the purpose of

1 this hearing at the request essentially of the hearing examiner  
2 to get some sense of the overall structure of the university  
3 organization chart.

4 (Employer's E-40 identified.)

5 BY MR. JOHNS:

6 Q Let me ask the question though to make sure it's right.  
7 Do you recognize this as the academic structure of the  
8 university?

9 A The academic, yes, with a particular focus on graduate  
10 education.

11 Q Yes, that's what I'm talking about, all right. So you see  
12 yourself here, which box would you fill in within --

13 A I would be the column second from the left, Arts and  
14 Sciences, in the box "dean" would be me. Underneath that are  
15 the 34 graduate groups within Arts and Sciences that I referred  
16 to earlier.

17 Q Below your box on here which is you said the second one  
18 over where it says dean, there is something that says PhD  
19 graduate dean.

20 A Yes.

21 Q To whom would we be referring to in that role?

22 A Eve Troutt Powell.

23 Q And then with respect to all the different schools there  
24 is a PhD graduate dean for all those schools through the point  
25 of medicine on the right-hand side. Is that correct?



1 A Correct. The medicine is the biomedical graduate studies  
2 and then that's broken down. I make that distinction because  
3 that dean will then play a role in doctoral students residing  
4 in other schools that are in a BGS program.

5 Q And with respect to the PhD graduate dean there, which has  
6 the graduate groups underneath, would that be Kelly  
7 Jordan-Sciutto in that particular instance?

8 A It would, yes. And if you would like an immediate feel  
9 for the interdisciplinarity of Penn, you should know her  
10 primary appointment is in the dental school.

11 Q The deans according to this all report into the provost's  
12 office?

13 A That's correct.

14 Q And there is then direct line to the president and then to  
15 the board of trustees?

16 A Correct.

17 Q If you look at the top, we'll look at blue box here, there  
18 is a box that says vice provost for education. Who is that?

19 A That is Beth Winkelstein.

20 Q And Beth Winkelstein would report into the provost?

21 A Directly.

22 Q There's two boxes underneath that that you mentioned  
23 earlier. I'm going to focus on one of them which we've had  
24 testimony about before which is the Council of Graduate Deans.  
25 Who sits on that?

1 A Each of the schools that has a graduate dean, in our case  
2 Eve Troutt Powell, is a member of that council, the chair of  
3 which is the vice provost for education.

4 Q That's Dr. Winkelstein?

5 A That's correct.

6 Q And within that Council of Graduate Deans, does that  
7 include there's PhD graduate deans for the nine schools that  
8 are listed in red as you go across?

9 A It does.

10 Q And with respect to the PhD graduate deans for all those  
11 different schools, they would all -- would they all have dual  
12 reporting roles both to the dean of a particular school, as  
13 well as to Beth Winkelstein by virtue of the Council of  
14 Graduate Deans?

15 A They would.

16 Q And can you characterize, again you spoke about it with  
17 respect to Dr. Eve Troutt Powell, the types of things for which  
18 those PhD graduate deans would be reporting to you or one of  
19 your colleagues as dean of a school and the types of things  
20 that they would be reporting up through the provost's office by  
21 virtue of their being on the Council of Graduate Deans?

22 A I guess I would characterize it as both local management  
23 and central management. So there are some things that are  
24 reported to me that revolve around things like replacing a  
25 graduate chair within a graduate group. That would come from

1 our faculty. That's a decision that would be managed by the  
2 dean, but would require the endorsement ultimately of the  
3 provost, the president, and the trustees. So a lot of  
4 personnel changes are local management.

5 Reported to me and to the provost would be a number of  
6 performance metrics, admissions data, what did the applicant  
7 pool look like, how many students were admitted, how many chose  
8 to matriculate at the university. We watch that very  
9 carefully. What does attrition look like? Do students leave  
10 the program and if so why do they leave the program. Time to  
11 degree, we spend a great deal of time focusing on how long it  
12 takes to get a doctoral degree at the University of  
13 Pennsylvania and how we compare to our peers in that regard.  
14 And then we collect placement data. Once successfully  
15 defending the thesis and being awarded the PhD by the  
16 university, where do they go and what do they do.

17 Q Now are you aware of any organization structure at the  
18 university of Pennsylvania that includes -- if you look in the  
19 red boxes here, seven of the nine schools that admit PhD  
20 students, which would include all those schools with the  
21 exception of Wharton and Engineering, are you aware of any  
22 organizational structure at the university that groups those  
23 seven schools together without Wharton and SEAS?

24 A None.

25 Q Are you aware of any administrative structure or lines of

1 reporting that would group those seven schools without Wharton  
2 and Engineering together?

3 A No, I'm not. In fact I would say speaking as the dean of  
4 Arts and Sciences, our strongest ties across graduate education  
5 are with Engineering, Wharton, and Medicine.

6 Q Why would you say that?

7 A Because the science departments in Arts and Sciences  
8 principally chemistry, physics, condensed matter physics in  
9 particular, and biology and bioengineering in biology  
10 collaborate extensively with the departments within Engineering  
11 shown in the purple box and share in many instances graduate  
12 students. So there's quite a bit of overlap there.

13 With respect to Wharton, I would argue that many of our  
14 social science departments enjoy the same connectivity to  
15 Wharton.

16 Q Can you give us some examples of those departments?

17 A Absolutely. So, doctoral degrees candidates within  
18 Wharton will frequently take graduate courses with our  
19 economics faculty. They may well do it with our Population  
20 Study Center, our demography group. It really speaks to the  
21 issue that a place like a Wharton, a world-class business  
22 school, needs an outstanding School of Arts & Sciences to  
23 complete its offerings in the educational space including  
24 graduate education. So not only do I know logical reason for  
25 clumping them, I would argue that it dismisses the fact that

1 the interactions are quite extensive.

2 Q What is did you say the Population Studies Center?

3 A Yeah, Population Study Center resides in our sociology  
4 department and it focuses exclusively on the study of  
5 populations, the dynamics of populations, age characteristics,  
6 demography really, career choices, things like that.

7 Q Now with respect to these PhD programs in these nine  
8 schools, can you give us a sense of what entity confers the PhD  
9 degree at the university?

10 A The university confers the degree. At commencement, the  
11 vice provost for education represents all of the schools in  
12 presenting all of the candidates for the PhD to the president  
13 for her endorsement. The only person who stands at  
14 commencement to represent PhD education is the vice provost for  
15 education.

16 Q That's Dr. Winkelstein.

17 A That's correct. In contrast, I stand for other elements  
18 of the School of Arts & Sciences, but I do not present the  
19 doctoral candidates.

20 Q Are all the doctoral standards, are their degrees then  
21 conferred together by the university once presented by Dr.  
22 Winkelstein?

23 A Correct.

24 Q How does that differ for example from undergraduate  
25 students within these schools? Who confers those degrees?

1 A The undergraduate education and degree is conferred by the  
2 school in which it resides, though ultimately at commencement  
3 is presented en masse to the president and the trustees for the  
4 official awarding, because every degree ultimately is from the  
5 University of Pennsylvania. But in the case of undergraduate  
6 education, a bachelor of arts will be on the diploma from the  
7 College of Arts & Sciences within the School of Arts &  
8 Sciences.

9 Q I want to switch gears for a second and talk a little bit  
10 about the financial structure at the university and  
11 specifically generally speaking where does the university  
12 receive income from?

13 A Multiple sources and it depends upon the school. For  
14 schools like mine, undergraduate tuition is a piece of it,  
15 though with our very generous financial aid policies it's a  
16 smaller piece than it used to be. But nonetheless it is a  
17 source of revenue. Fundraising is very much a source of  
18 revenue. Proceeds from endowments, some schools like Annenberg  
19 run a lot of their operations off their endowment because it's  
20 very large. Arts and Sciences runs very little off of its  
21 endowment. Per capita basis, it's smaller. External funding  
22 of one type or another from federal funding agencies,  
23 foundations, corporations, and oftentimes that's contractual in  
24 nature. We agree to perform work for a federal funding agency  
25 and are in turn supported for such work. And then some of the

1 schools in recent years also receive significant revenue from  
2 the university's commercialization efforts.

3 Q I want to again unpack a few of those things. This is  
4 going to sound like an incredibly dumb question so bear with  
5 me. What's an endowment?

6 A An endowment are gifts, funds received that are placed in  
7 a permanent endowment governed by law in which we can only use  
8 the interest generated from the endowment. There are forms of  
9 endowments that have more flexibility than others. But  
10 permanent endowment means what the words say, that the  
11 university has a spending rule that allows you to spend certain  
12 percentage of the interest generated.

13 Q And by interest generated, you're making a distinction  
14 between the money generated as a result of investments and  
15 other types of activities with respect to those gifts, but not  
16 a the principal itself that has been donated to the university.

17 A Correct.

18 Q You talked about fundraising as well. These would be  
19 other types of funds generated by the university through  
20 individuals and/or corporations and/or other types of  
21 organizations that might donate money to the university for  
22 different causes or different purposes?

23 A Yes.

24 Q Each school has a set of priorities and works with its  
25 donor base to identify individuals willing to support those

1 priorities. Those gifts can be to endow something, but then  
2 they have a more specific purpose than general endowment. Or  
3 they can be what we would call a term gift, which support is  
4 given for five years to support a program and once those monies  
5 are expended they would need to be replaced in some way.

6 Q You spoke about undergraduate tuition, but that financial  
7 aid increasingly was taking up part of that. Can you just talk  
8 about financial aid and other graduate tuition, how that works?

9 A Sure. The university has what's called a need-blind  
10 all-grant policy to undergraduates, which means that ability to  
11 pay is not taken into consideration when a decision is made  
12 about acceptance to pay. That's need-blind. At that point, if  
13 someone accepts then the Student Financial Aid Services looks  
14 at whether or not financial assistance is required. If it is,  
15 all of that is provided by grants, not loans. This is an  
16 effort to control very precisely student debt at graduation.

17 Q And with respect to again just so we're all talking about  
18 the same thing, when you say that is taken care of with respect  
19 to grants to the students not loans, so these are funds given  
20 to the students to pay tuition which there is no expectation  
21 that will be repaid to the university?

22 A That's correct.

23 Q And need-blind admission, so with respect to the  
24 undergraduate enrollment, in any particular year because the  
25 admissions process is need-blind there could be a substantial



1 proportion of undergraduate students at the university who are  
2 not paying tuition at all?

3 A There are certainly students who are fully supported by  
4 financial aid. Usually, there is a component of that that is  
5 what's called work study where they do something for the  
6 university that usually enhances their undergraduate experience  
7 like work in the archives of the library or with the curators  
8 in the museum, but in turn receive payment for those services.  
9 It goes against their undergraduate tuition though.

10 Q Got it. Now you also spoke about agency funding in some  
11 instances. Would agency funding also encompass research  
12 activities, meaning federal grants that are coming into the  
13 university to cover research activities being performed there?

14 A Yes.

15 Q Can you sort of talk about that?

16 A So the university has a variety of research programs that  
17 are quite competitive with federal funding agencies. If I use  
18 Arts and Sciences as an example, our biology and psychology  
19 departments are very successful in receiving funds from the  
20 National Institutes of Health and its various branches. Our  
21 more physical science departments are like chemistry, physics,  
22 & astronomy, to name two, are very successful at receiving  
23 funding from the National Science Foundation. Our humanities  
24 department receives funding from the National Endowment of  
25 Humanities. So there are a large array of federal funding

1 agencies with what are called extramural budgets, which means  
2 their purpose is to receive proposals from universities,  
3 evaluate those proposals in a rigorous, peer review fashion,  
4 and make awards to universities to conduct those research  
5 programs.

6 Q Overall, Dr. Fluharty, does Penn's research activities --  
7 does the university's research activities pay for themselves  
8 through this grant process?

9 A Absolutely not.

10 Q Can you talk about that?

11 A So when a grant is received, it comes in one lump sum but  
12 with two components. The first component is what we call  
13 direct costs. These are costs specifically associated with the  
14 performance of that research program funded by a grant. They  
15 would include personnel like a principal investigator and a  
16 percentage of his or her time devoted to this project in which  
17 the agency would agree to pay the university for that effort  
18 based on percentage of the person's time.

19 There could be other personnel like research technicians  
20 and there can be graduate fellows, post-doctoral fellows. And  
21 there are supply costs associated with conducting the research,  
22 specifically that research. And then there may be equipment  
23 items. They may need to purchase types of equipment to  
24 facilitate the research. Large items of equipment actually do  
25 not contribute to the indirect cost rate. It's backed out.

1           The second piece is the indirect cost rate. The indirect  
2 cost rate are the generalized expenses of the university in  
3 conducting research broadly defined, so the facilities in which  
4 the research will be performed and the administration of any  
5 grant. So, indirect costs are often called facilities and  
6 administration rate to make that distinction. The facilities  
7 and administration rate is negotiated with the federal  
8 government agency. It's a very elaborate negotiation that  
9 usually plays out over about two years.

10           During that negotiation, and it's important that I refer  
11 to it as a negotiation, the university is required to submit  
12 extensive document about its administration of grants at the  
13 level of the university, which is called the Office of Research  
14 Services, at the level of the school, and at the level of the  
15 department to document precisely which individuals, what is  
16 their compensation and effort to manage grants broadly defined.  
17 The federal government caps that at 26 percent. So even if you  
18 submit a proposal which documents that your expenditure is  
19 greater than that you will not be compensated for it.

20           The facilities piece is a more extensive space survey of  
21 the entire campus, where is research performed and what are the  
22 costs associated with it, cost of maintaining it, including  
23 depreciation, but more commonly things like HVAC, electricity,  
24 all that maintains the space in a healthy working order for the  
25 conduct of research by individuals in that space. If it's

1 multiuse space, meaning teaching and research, it's got to be  
2 documented as both.

3       Here's where the negotiation comes in. It is very rare, I  
4 know of no instance in my time as vice provost that the  
5 government agrees with the university's space assessment and  
6 that's where the negotiation begins. Administrative capped at  
7 26, negotiation begins, and some agreed-upon rate is settled  
8 on. Because the agency does not accept directly but negotiates  
9 with the university's space charges, you do not fully recover  
10 your costs. Because the administrative costs are capped at 26  
11 percent, you do not fully recover your costs.

12       We are currently sitting at 60 percent of our federally  
13 negotiated F&A rate. We are about to embark upon an extensive  
14 negotiation, which I described previously, with the rate  
15 setting agency. So for that reason the fact is that no  
16 research-intensive university fully recovers the actual cost of  
17 performing research at its university. But it is so core to  
18 our mission, and the creation and dissemination of knowledge,  
19 that we use our funds to make up the difference so all  
20 universities are subsidizing all federally funded research.

21 Q     I take it from that explanation -- I just want to get one  
22 clarification before I move on. When you said F&A, is that  
23 again the indirect cost?

24 A     Same thing, yeah. Indirect cost is a way of sort of  
25 shorthand for saying all the costs that are not directly

1 related to a particular grant, but rather the environment that  
2 supports the activities. It is broken down into the facilities  
3 costs and the administrative costs. And so people will use  
4 indirect cost and F&A interchangeably.

5 Q Has that rate declined over time?

6 A It has, it has. When I was senior vice provost for  
7 research, we were at 62 1/2 percent, which was still by our  
8 estimation several percentage points below what the real costs  
9 were, which we estimated to be 67 percent. Again, on the  
10 administration side of it there is no negotiation. It's capped  
11 at 26 percent. We're currently at 60 in a multiyear agreement.  
12 And the negotiation that is beginning and just getting started,  
13 early indicators are that it may drop further. This is in part  
14 function of the resources available to the federal funding  
15 agencies, the U.S. government.

16 Q Now I'm fairly certain of the answer to this question  
17 given what you said. I take it you're familiar with the  
18 process by which faculty members then would apply for and  
19 obtain federally funded grants.

20 A Yes.

21 Q Can you just generally describe how that process would  
22 work?

23 A So I can talk about myself. When I was running a large  
24 research lab, we were interested in new generation,  
25 anti-hypertensives. We would have ideas about some small

1 molecules that might serve as effective anti-hypertensives, but  
2 we needed to do a lot of early work to understand optimal  
3 structure of the molecule, root of administration, mechanism  
4 action. And so we would develop a grant proposal to a funding  
5 agency, usually the National Institutes of Health for work like  
6 that, submit it. It would be peer reviewed, and peer reviewed  
7 means that study sections are formed that are made up of in  
8 this case my colleagues. I sat on many study sections. All  
9 conflict of interest is controlled. And then those grants are  
10 reviewed.

11 I would receive what's called a priority score. And the  
12 agency, the federal agency that's administering these grants  
13 would determine where what we call the pay line is. Those with  
14 priority scores that are above the pay line would then receive  
15 their grant. Those that were below would not. They would be  
16 given an opportunity to resubmit and see if they could get  
17 above that pay line. That pay line moves a lot and the reason  
18 being again the extent that the federal government can disburse  
19 funds unto these agencies.

20 Q So if I'm understanding, if the agency has less funds, the  
21 pay line would move up because fewer scores are going to  
22 qualify to get that funding.

23 A That's absolutely correct. And that is exactly what's  
24 happening in today's environment.

25 MR. JOHNS: If we haven't yet, I'd like to move for the

1 admission of Exhibit E-40.

2 MS. ROSENBERGER: No objection.

3 HEARING OFFICER LEACH: Employer 40 is received.

4 (Employer's E-40 received.)

5 MR. JOHNS: Dr. Fluharty, I've shown you a document that  
6 we've marked as Exhibit E-41. If you could take a moment to  
7 look at that?

8 (Employer's E-41 identified.)

9 MR. JOHNS: And while you're doing that, Madam Hearing  
10 Officer, I just wanted to note that you had made a request on  
11 the record to get sort of an example of a grant and this would  
12 be an example of a grant. I'm going to take Dr. Fluharty  
13 through it. I will represent to you that the way it prints out  
14 sort of landscape and not up and down makes it a little bit  
15 hard and some pages may look cut off, but I think for our  
16 purposes today we'll be able to go through the elements of it  
17 quite clearly.

18 HEARING OFFICER LEACH: Okay.

19 BY MR. JOHNS:

20 Q So Exhibit E-41, Dr. Fluharty, what is this?

21 A This is what's called an RO1 application to the National  
22 Institutes of Health, in this case neurological diseases and  
23 stroke. That's what the RO1 in the parentheses in the first  
24 sentence means that this is a request for an award to be made  
25 to an individual faculty member, in this case Dave Meaney in

1 engineering and chair of bioengineering. He would be  
2 designated the principal investigator. So this is exactly what  
3 I described, an example of a proposal being submitted to the  
4 National Institutes of Health for funding of a particular  
5 research project performed in Dr. Meaney's lab.

6 Q And Dr. Meaney it says is a professional of bioengineering  
7 and neurosurgery?

8 A That's correct. The bioengineering appointment is in the  
9 School of Engineering and Applied Science. The neurosurgery  
10 appointment is in the Perelman School of Medicine.

11 Q So Dr. Meaney, as the principal investigator, would be  
12 responsible for putting this proposal together to send to a  
13 funding agency, in this instance NIH.

14 A Correct.

15 Q In order to have that then reviewed in the process you  
16 talked about that results in a scoring of the proposal, I  
17 suppose is the way to put it.

18 A Yep.

19 Q Which would then result hopefully for Dr. Meaney's sake in  
20 funding or potentially if you're below the pay line would not  
21 be funded.

22 A Correct.

23 Q I just want to take us through and look at a few pages  
24 here. In particular, if you would turn maybe three pages in to  
25 something called project summary and then relevance. I'd just



1 like you to sort of explain what these sections are for as part  
2 of a grant proposal?

3 A This is in effect the shorthand narrative of what the  
4 larger body of the grant addresses. This is frequently used by  
5 the agencies to assign it to a study section, which is the peer  
6 review process that I referred to. So a brief summary,  
7 specific aims, what exactly is being examined, what is the  
8 overriding hypothesis that's being tested, and what is the  
9 impact. And then that relevance and impact oftentimes for  
10 National Institutes of Health, which is charged and whose  
11 budget is awarded in order to advance human health, there needs  
12 to be relevance to a human health issue. In this case, it's  
13 likely traumatic brain injury -- it is traumatic brain injury.  
14 So this is a short summary of the larger body of the grant.

15 Q With respect to the specific aims that are listed and sort  
16 of general hypotheses, when grants are funded by a federal  
17 agency does that mean at the end of the grant process that  
18 there will definitely be an answer necessarily to these  
19 particular questions or can these things within this area, can  
20 other questions be answered as well with respect to that?

21 A It's very difficult to predict the outcome of basic  
22 discovery like this. It is very clear that a set of  
23 experiments have been set up to test a hypothesis. In the  
24 process of conducting basic science, it is frequently the case  
25 that some new discovery is made but was not anticipated.

1 That's fundamentally important for the way we manage science in  
2 the United States. It is what we don't know that's most  
3 important. So you look for work that confirms the hypothesis  
4 and establishes a predictable base for advancement, but you  
5 also are very open to the realization that basic exploratory  
6 science often leads to very novel discoveries not necessarily  
7 predicted by the principal investigator in this case.

8 So there's no question the approach is to establish the  
9 hypothesis, its validity, and to further establish its  
10 potential impact on the health and well-being of humans. But  
11 it also is the case that many discoveries are made that are  
12 hugely important.

13 Q If you turn forward a few more pages there is going to be  
14 a page that's labeled biographical sketch.

15 A Yes.

16 Q What is this part of the grant used for?

17 A This is used to provide David Meaney with an opportunity  
18 to explain to the funding agency why he's qualified to do this  
19 work, what is his educational background, what is the type of  
20 research that he has been conducting throughout his career,  
21 what are some very high-profile publications that attest to  
22 that impact and importance, and what is his current research  
23 support from other sources. This is important because, again,  
24 in a climate in which resources are scarce, you want to make  
25 certain that someone isn't asking for duplicate funding.

1 Q Turning forward a few more pages again there is something  
2 called a modular budget. It says modular budget, Periods 1  
3 and 2. Do you see that?

4 A Yes, I do.

5 Q Can you talk about this page, and how this gets filled  
6 out, and what it relates to?

7 A So this is something that has changed through the years  
8 with NIH. Earlier years, the direct cost section of this would  
9 require a full itemized budget for every expenditure associated  
10 with the grant. NIH, a few years ago to simplify went to a  
11 modular budget where the award is \$250,000 and you do not need  
12 to itemize every single budget item, though some you do need to  
13 provide some detail on in the narrative. And then as you go  
14 down you see the indirect costs that I referred to. And if you  
15 look in the column there you see 60 percent, which as I said is  
16 the federally negotiated indirect cost rate. The indirect cost  
17 base is not identical to 250 because there are some  
18 expenditures presumably that are not qualified for indirect  
19 cost, meaning they are not facilities or administrative costs.

20 Q So the 60 percent is not applied necessarily to the 250,  
21 but to a lower -- a portion of that.

22 A It could be the 250 if all of those expenses were deemed  
23 allowable to calculate an indirect cost base. To the extent  
24 that some are not, the number could be smaller. It would never  
25 be larger.

1 Q And ultimately that leads to the funds requested?

2 A That's correct. So if you go down all the way you see c)  
3 total direct and indirect cost, 250, add in the 143,160, which  
4 is 60 percent, you come up with the request being 393,160. And  
5 as I stressed earlier, the 250 may well meet the direct  
6 expenditures of the grant. The 143,160 will certainly not  
7 cover all the F&A costs.

8 Q And that's the amount as you testified earlier that's  
9 being subsidized by the university in order to support research  
10 activities that fit within the university's overall mission?

11 A Correct.

12 Q If you turn a few more pages in then there is something  
13 called budget justification?

14 A Yes.

15 Q Walk us through what this is.

16 A In this case, these are key personnel. So while it is not  
17 necessary in today's NIH modular grant proposal to itemize  
18 every single expense, it is important to document the key  
19 personnel and their effort on this particular proposal. As you  
20 see here, there is Dave Meaney. He is the principal  
21 investigator. The award would be made to him through the  
22 trustees of the University of Pennsylvania. And he is showing  
23 that his effort on this is 2.4 calendar months. That would be  
24 used to calculate what percent salary recovery would be  
25 expected. There is a post-doctoral fellow. I described this

1 earlier. This is someone who has completed their doctoral  
2 education in the sciences. It is very common for someone to  
3 spend a few years post-PhD before embarking on their career  
4 choice, especially if it's an academic position. It's an  
5 extended training period beyond the doctoral education. In  
6 this case, here is a pre-doctoral fellow. This would be a  
7 graduate student who has already chosen to pursue their thesis  
8 in David Meaney's lab and is already presumably working on  
9 elements of specific Aim 1 and 2 in pursuit of that doctoral  
10 thesis.

11 Q Let's stop there for a second because I want to make sure  
12 it's clear what you're saying with respect to that. So the  
13 individual listed, the graduate student, that's some who listed  
14 in the budget, their lab will provide funding that would go  
15 towards their stipend performing research pursuant to this  
16 grant, which will ultimately likely be part of their thesis or  
17 dissertation at the end of this?

18 A Correct.

19 Q Now with respect to this budget justification, can the  
20 individuals below Dr. Meaney be changed during the course of  
21 the grant?

22 A Yes. And frequently are.

23 Q Why is that?

24 A Because people come and go. A post-doc may have an  
25 opportunity to pursue that career sooner than they might have

1 imagined and might elect to leave Dr. Meaney's lab in order to  
2 take a job elsewhere. Because he has monies for a post-  
3 doctoral fellow, all he's required to do is notify NIH of a  
4 personnel change and that he is in fact filling that with a  
5 different person. NIH does not like it to just say to be  
6 determined. They want to know that a personnel change has  
7 occurred, but they will approve it. The only personnel change  
8 that would require the university to intervene would be  
9 changing the principal investigator. So the post-doc --

10 Q So if Dr. Meaney were to leave or something like that?

11 A Yes. We would actually have to justify to the National  
12 Institutes of Health why that grant should remain at the  
13 University of Pennsylvania in the absence of the awardee, which  
14 is David Meaney. The post-doc and pre-docs, they can change  
15 frequently. As long as NIH is notified of a personnel change,  
16 the grant is not in jeopardy.

17 Q With respect to this proposal and I think you said this  
18 earlier, I want to make it clear, so this is sent to NIH to be  
19 scored, to which ultimately Dr. Meaney may or may not receive  
20 funding from NIH based on the proposal.

21 A That's correct. Correct.

22 MR. JOHNS: I'd move for the admission of Exhibit E-41.

23 HEARING OFFICER LEACH: Any objection from the Union?

24 MS. ROSENBERGER: No.

25 HEARING OFFICER LEACH: Employer 41 is received.

1 (Employer's E-41 received.)

2 BY MR. JOHNS:

3 Q Dr. Fluharty, once the proposal is scored, will the  
4 principal investigator hear back from NIH as to whether or not  
5 they have been funded?

6 A Yes. The university and the principal investigator will  
7 receive what's called an award notice, which is a statement of  
8 the intent of the federal agency to fund the project.

9 (Employer's E-42 identified.)

10 BY MR. JOHNS:

11 Q Dr. Fluharty, I've shown you a document that has been  
12 marked as Exhibit E-42. Can you tell us what this is?

13 A This is the award notice.

14 Q Thank you. So is this the notice that Dr. Meaney in this  
15 instance would have received back from NIH telling him how much  
16 funds he got as a result of his grant proposal?

17 A That's correct.

18 Q If you could take us through I guess to the third page in  
19 where it says award data, just sort of tell us what this shows.

20 A So this shows what's being awarded both by way of the  
21 direct costs, as well as the F&A that I referred to earlier.  
22 The total would then be the approved budget. The total amount  
23 of federal funds obligated means that there are no other  
24 sources to support this project, nor is the federal government  
25 reaching for other sources so this is entirely funded by this

1 agency within the National Institutes of Health.

2 Q And with respect to those funds that come in pursuant to  
3 this grant award, are there restrictions with respect to how  
4 those funds can be spent?

5 A The modular format has reduced some of the arduous  
6 paperwork that typifies a lot of federal government agencies  
7 and is an effort to try to streamline. There are more  
8 flexibility around certain expenditures. But major changes  
9 particularly around personnel would require notification to the  
10 program officer of the funding agency responsible for the  
11 grant. As I said, the only personnel change that would trigger  
12 a requirement for the university to justify changes would be a  
13 change in principal investigator.

14 Q So these monies would come into the university with  
15 respect to Dr. Meaney's lab to perform research in the area  
16 that's identified in the proposal. Research is performed in  
17 that lab by the individuals listed in the grant but also other  
18 individuals in the lab could do work on this grant as well?

19 A Yes.

20 Q Does that oftentimes as you said result in students who  
21 are working at the lab, their thesis?

22 A It certainly can, yes.

23 Q Will it also result in academic scholarship that would  
24 advance the particular field being studied?

25 A Absolutely. That's the whole point of the impact



1 statement associated with a federally funded grant.

2 HEARING OFFICER LEACH: The sticker on mine says E-43, but  
3 should it be 42?

4 MR. JOHNS: It should be. We apologize.

5 HEARING OFFICER LEACH: That's okay. Does yours say 43?

6 THE WITNESS: Mine says 42.

7 HEARING OFFICER LEACH: Then I'll change mine.

8 (Pause.)

9 MR. JOHNS: We apologize for that.

10 HEARING OFFICER LEACH: No problem.

11 (Pause.)

12 MR. JOHNS: We would move for the admission of  
13 Exhibit E-42.

14 MS. ROSENBERGER: No objection.

15 HEARING OFFICER LEACH: Employer 42 is received.

16 (Employer's E-42 received.)

17 MR. JOHNS: Dr. Fluharty, I've shown you a document that  
18 has been marked as Exhibit E-43.

19 (Employer's E-43 identified.)

20 BY MR. JOHNS:

21 Q Generally, tell us what E-43 is.

22 A E-43 is a publication in nature, a scientific report on  
23 the outcome of federally funded research. The grants that  
24 supported the research, personnel, either are authors or are  
25 listed in the acknowledgements. The affiliations of the

1 authors are usually indicated as they are here by the  
2 footnotes.

3 Q I want to start with the authors with respect to that.  
4 There are a number of individuals listed with this. With  
5 respect to the research that resulted from the grant, why would  
6 there be individuals listed for example or potentially be  
7 individuals listed from outside the University of Pennsylvania,  
8 in this instance from University of California, Riverside.

9 A Because Dr. Meaney collaborates extensively, as do most of  
10 our faculty at Penn, with colleagues across the country and  
11 indeed the world so they participated in some way either in the  
12 generation of the ideas, the conducting of experiments and the  
13 writing up of the report.

14 Q With respect to the acknowledgements that you spoke of  
15 earlier, I want to turn to the page to see if you can close the  
16 loop on the grants that we were looking at. Page 14 of this  
17 article, there is a section that's labeled acknowledgements.  
18 In that section it talks about funding was provided by U.S.  
19 Department of Health and Human Services, and then parents NIH,  
20 NS088176. Does that number correspond to the grant award  
21 that's in Exhibit E-42? If you could just point that out as  
22 well?

23 A It does. If you look at Exhibit E-42, you look at the  
24 grant number on the very first line on the award notice,  
25 NS088176, you'll notice that in the acknowledgements that is in

1 fact the first NIH grant that is acknowledged in providing  
2 support for this work. It's not the only one. And in a large  
3 lab like David Meaney's it would be rare that any given  
4 scientific publication had support from only one grant.

5 Q So Dr. Meaney, as principal investigator, wrote a grant  
6 that's Exhibit E-41; that resulted in funds being awarded to  
7 the university, Exhibit E-42, to fund research within his lab,  
8 which ultimately resulted in scholarship in Exhibit E-43 that  
9 advances the field.

10 A Correct.

11 Q Does that research as you said oftentimes appear as well  
12 in students' dissertations who are performing research within  
13 Dr. Meaney's labs?

14 A It certainly could. If a graduate student was working on  
15 this project then it's likely that some element of his or her  
16 dissertation would include some of the results communicated in  
17 a publication like this.

18 MR. JOHNS: I'm going to completely switch gears and while  
19 we're doing that I'd like to move the admission of Exhibit  
20 E-43.

21 MS. ROSENBERGER: No objection.

22 HEARING OFFICER LEACH: E-43 is received.

23 (Employer's E-43 received.)

24 MR. JOHNS: I'm going to refer to an exhibit that's  
25 already been admitted into the case as Exhibit U-33. I have a

1 copy for Dr. Fluharty, but I didn't bring for everyone.

2 MS. ROSENBERGER: Give me a minute to get to it.

3 MR. JOHNS: Does everyone have it?

4 BY MR. JOHNS:

5 Q Dr. Fluharty, I've shown you a document that has been  
6 marked as Exhibit U-33. In particular, I'm going to refer to  
7 Page 10 of 13, if you look at the bottom right-hand corner of  
8 these pages.

9 A Okay.

10 Q Within this document, on Page 10, there is a section  
11 labeled copyright and patent policies. Do you see that?

12 A I do.

13 Q It says in that section that a dissertation submitted as  
14 part of the requirements for a degree is the property of the  
15 university. Can you explain what that means? And then after  
16 that it says any copyrights or patent rights arising your fund  
17 shall be governed by policies. I want you to take us through  
18 how that works with respect to a student dissertation.

19 A So if we begin with the dissertation, the university  
20 requires that all doctoral degrees be submitted to the library  
21 and to our online Scholarly Commons in order to fulfill our  
22 obligation as a university to broadly disseminate the knowledge  
23 that's been created. There are instances in which for a  
24 variety of reasons a PhD thesis might not result in other forms  
25 of publication or dissemination. This is what guarantees the

1 university fulfilling its obligation to broadly disseminate the  
2 knowledge created.

3 Q When you're saying broadly disseminate, you're essentially  
4 talking about a physical copy of the document kept in a library  
5 or an electronic copy of the document kept in archives, stored  
6 electronically?

7 A Open to the public, called open access, and referred to as  
8 Scholarly Commons, yes.

9 HEARING OFFICER LEACH: I didn't hear the last word,  
10 scholarly?

11 THE WITNESS: Scholarly Commons.

12 HEARING OFFICER LEACH: Commons?

13 THE WITNESS: Commons.

14 HEARING OFFICER LEACH: C-O-M-M-O-N-S?

15 THE WITNESS: Yes.

16 HEARING OFFICER LEACH: Okay.

17 THE WITNESS: It's just the name for the repository. Many  
18 of our faculty will also put their articles there. This is a  
19 way for you to broadly disseminate knowledge without for  
20 instance someone having to buy a journal in which a publication  
21 is in, so they can go to the online site and they can see the  
22 material. There are a lot of different laws and regulation  
23 that govern open access, copyright, patent law.

24 BY MR. JOHNS:

25 Q Let's talk about the copyright for the dissertation,

1    however.

2    A     Yes.

3    Q     Who owns the copyright for a student's dissertation?

4    A     The copyright would be owned by the student as the sole  
5    author.  The copyright is not exclusively assigned to the  
6    university for the purposes I just described which is to put a  
7    copy physically in the library for public consumption and  
8    online for Scholarly Commons.  That would differ from a journal  
9    article that results from a dissertation in which if there are  
10   multiple authors as you shared in the previous exhibit then  
11   copyright by copyright law is equally shared by all authors on  
12   the manuscript.

13   Q     But if it's a dissertation that is the result solely of  
14   the student's own work and research at the university that  
15   student owns the copyright to that research.

16   A     That's the university's position.

17   Q     Dr. Fluharty, if the dissertation is converted into a book  
18   that is published, who would receive the revenues from the sale  
19   of that book?

20   A     It depends on who the authors are.

21   Q     If the author was -- again the student was the only author  
22   of the dissertation, and the only contributor of the  
23   dissertation, and the only author listed on the book, who would  
24   receive the revenue?

25   A     The student.

1 MR. JOHNS: I apologize in advance. I only have four  
2 copies so after the witness looks we'll give that one to you,  
3 if that's okay.

4 (Employer's E-44 identified.)

5 BY MR. JOHNS:

6 Q Dr. Fluharty, I'm showing you a document that's been  
7 marked as Exhibit E-44. Do you recognize this document?

8 A I do.

9 Q Do you recognize this document?

10 A I do.

11 Q What is it?

12 A This is the doctoral dissertation manual approved,  
13 regularly updated by the Graduate Council of the Faculties,  
14 which is one of the units reporting directly into the vice  
15 provost for education.

16 Q If you would turn to Page 11 of this document?

17 A Yes.

18 Q There is a section there labeled copyright notice that  
19 states the dissertation submitted as part of the requirements  
20 for a degree is the property of the university. However, the  
21 author of the discipline owns and retains the copyright in the  
22 dissertation without further registration formalities.

23 A That's correct.

24 Q Is this an explanation of the university's copyright  
25 program that is reflected in U-33, where it said it's otherwise

1 subject to the copyright policies of the university?

2 A Yes. This is in fact what I said, I hope at least.

3 Q I believe it is.

4 MR. JOHNS: We would move for the admission of  
5 Exhibit E-44.

6 MS. ROSENBERGER: No objection.

7 HEARING OFFICER LEACH: Employer 44 is received.

8 (Employer's E-44 received.)

9 BY MR. JOHNS:

10 Q Dr. Fluharty, I just have a few more questions for you.

11 A Sure. Oh, sorry, I was supposed to pass it on.

12 Q I want to talk briefly about the summer. In your  
13 experience in the years you've been at the university, do SAS  
14 graduate students travel during the summer?

15 A Extensively.

16 Q For what types of activities?

17 A For those that are doing field work, they will be at those  
18 remote sites. Certainly our graduate students in anthropology,  
19 archeology, classics, will be at digs, archeological digs.  
20 Many of our historians and other humanists will be at archives  
21 researching original material from around the world, things  
22 that are simply not accessible to them on the Penn campus.  
23 Even the science doctoral students would use summers to the  
24 extent that they have the opportunity to visit other  
25 laboratories, particular the National Labs run by the federal



1 government. So as a class there's probably more science  
2 doctoral students on campus in the summer than any others, but  
3 the largest contingency of graduate students are not on campus  
4 in the summer. They are doing the work necessary to complete  
5 their dissertation that cannot be done during the academic year  
6 at the University of Pennsylvania.

7 Q Are there a significant number of PhD courses that are  
8 even offered during the summer in SAS?

9 A No.

10 Q Are there any?

11 A There are some, yes, absolutely. But I would say it's  
12 probably less than 10 percent of the total courses that are  
13 offered in the academic year.

14 Q Approximately how many courses during a regular academic  
15 term, either spring or fall, I assume they are relatively  
16 comparable, how many courses are offered across SAS, graduate  
17 or undergraduate, during either a spring or fall academic term?

18 A Probably close to 2,000, maybe 1,800.

19 Q How does that compare to the summer, the number of classes  
20 offered by SAS?

21 A I would estimate and I want to emphasize I'm estimating  
22 somewhere around 150 or less.

23 Q Just a couple more questions, Dr. Fluharty. In your role  
24 as a faculty member now, not as dean of SAS, you have  
25 appointments both within SAS and BGS. Have you had opportunity

1 to work with students from outside of SAS on research projects?

2 A Oh, absolutely, yes. My graduate students from Arts and  
3 Sciences have typically come from psychology, my appointment,  
4 but I have had students from biology. Outside of SAS, they  
5 have come from the departments of which I hold appointments in,  
6 pharmacology graduate group and neuroscience graduate group.  
7 In fact, I would say that over the course of my career I had  
8 more graduate students from pharmacology and neuroscience than  
9 I did Arts and Sciences. For a neuroscientist, that would not  
10 be unexpected.

11 Q I think you spoke about this earlier -- well, before I get  
12 to that, have you ever served as a dissertation advisor for a  
13 student outside of SAS?

14 A Yes.

15 Q I think you spoke about this earlier. From the standpoint  
16 of the types of research activities being performed, which  
17 students would have more in common at the university, biology,  
18 physics, chemistry and engineering students, or biology,  
19 physics, chemistry and a student from English?

20 A The former, absolutely. The courses taken so the core  
21 doctoral curriculum, the type of research conducted, and even  
22 the collaborations across the schools would lead to very strong  
23 ties between the three SAS graduate groups that you mentioned  
24 and the School of Engineering and Applied Science. It's very,  
25 very different for the humanists and even for some of the

1 social science graduate groups.

2 MR. JOHNS: No further questions. Thank you, Dr.  
3 Fluharty. The Union's counsel may have some questions for you.

4 CROSS-EXAMINATION

5 BY MS. ROSENBERGER:

6 Q Good morning.

7 A Good morning.

8 Q My name is Amy Rosenberger and I am one of the lawyers  
9 representing the Union in this case. I have quite a few  
10 questions for you.

11 A Okay.

12 Q You covered a lot of territory. On that last issue,  
13 although in your view the students in -- I may not get the  
14 departments correct but sort of the hard science departments  
15 within SAS.

16 A Yes.

17 Q In your view have more in common with engineering. The  
18 university has opted to include them in SAS, right?

19 A The university? No. They've opted to apply to a graduate  
20 group or admission into one that resides in SAS.

21 Q The university has determined that the chemistry, biology,  
22 and --

23 A Oh, those departments.

24 Q -- physics departments will be within SAS.

25 A That's correct.

1 Q The university drew those lines.

2 A That's correct, the university has a structure that while  
3 there is a great deal of movement across those lines and across  
4 those schools, most universities would structure the sciences  
5 in Arts and Sciences around chemistry, biology, physics,  
6 astronomy, linguistics, psychology. That is correct, yes.

7 Q So if I understand you correctly, that's a decision that  
8 the university has made. But that's common in universities  
9 across the board.

10 A It is.

11 Q You hold appointments in three departments, right?

12 A Correct. Four departments.

13 Q Oh, because of veterinary medicine.

14 A Yes.

15 Q But three departments that grant PhDs.

16 A Correct.

17 Q Your primary appointment is in psychology?

18 A Yes.

19 Q And your secondary appointment is in neuroscience and  
20 pharmacology?

21 A Correct.

22 Q Are they departments or -- they're graduate groups, yes?

23 A No, they're departments.

24 Q They are departments.

25 A They are departments and graduate groups. So sometimes a

1 department houses a graduate group. Pharmacology and  
2 neuroscience are examples of that. Sometimes a graduate group  
3 resides outside of a department because it is very  
4 interdisciplinary and there is not an obvious departmental  
5 role.

6 Q For purposes of -- what's the difference between you  
7 having a primary appointment in psychology say and a secondary  
8 appointment elsewhere? What's the significance of that?

9 A Usually it is what would be called voting rights. So if  
10 you are a primary faculty member in a department then you vote  
11 on all decisions made by that department.

12 Q Can you give some examples of the kind of decisions you  
13 would vote on?

14 A Appointments to the faculty, promotions to the faculty,  
15 discussions around priorities in terms of submitting large  
16 grant proposals that are multi-investigator, not like the one  
17 we discussed here. Directional kinds of things.

18 Q Curriculum?

19 A Curriculum.

20 Q Admissions?

21 A Depends on what level of admissions. Usually, for  
22 graduate admissions it's done by the graduate chair and a small  
23 committee. It doesn't involve the whole department.

24 Q But undergraduate admissions is by --

25 A That's completely centralized. No school governs its own

1 admissions.

2 Q Oh, okay.

3 A At Penn, the four undergraduate schools, admissions to  
4 them runs centrally by the Dean of Admissions, not  
5 individually.

6 Q And for your secondary appointments just to sort of close  
7 the loop on that line, you talked about what voting rights  
8 means in a department. And in a secondary appointment in those  
9 departments, you don't have voting rights for the kinds of  
10 decisions that you just listed.

11 A Although I have to add one subtlety which is that there  
12 are instances in which a secondary appointment would be granted  
13 voting rights because it's deemed by the faculty that  
14 individual brings unique value and therefore, so for instance  
15 for years I had full voting rights in pharmacology, in the  
16 medical school, even though I was a secondary appointment  
17 meaning I was not hired originally by that department. And  
18 that was because i brought things that the department needed  
19 that was not represented by the standing faculty.

20 When I became more administratively focused first as  
21 senior vice provost and then as dean, I began to relinquish  
22 many of the voting rights. In Arts and Sciences, by faculty  
23 handbook, I can't vote because I'm the dean. But I was able to  
24 vote in departments in which I had voting rights but was a  
25 secondary. To me that didn't make a lot of sense and so I

1 relinquished those voting rights.

2 Q The extent of the voting rights that you had, if I  
3 understand you correctly, in your departments where you have a  
4 secondary appointment are determined by, well, I guess partly  
5 by you, whether you want the voting rights. But ultimately  
6 whether you get granted voting rights is determined by the  
7 faculty of that department.

8 A That's correct.

9 Q And when we talk about faculty, we're talking about the  
10 standing faculty which is the tenure track and tenured faculty,  
11 right?

12 A Correct. Usually, a decision around voting rights would  
13 only be made by the tenured faculty. The tenure track faculty  
14 who have not received tenure would not participate in that type  
15 of decision.

16 Q Are you a member of the graduate group for psychology?

17 A Yes.

18 Q And are you a member of the graduate group for  
19 pharmacology and BGS?

20 A Yes.

21 Q And in a graduate group for neuroscience?

22 A Yes.

23 Q As a member of the graduate group, you have voting  
24 rights --

25 A Yes.

- 1 Q -- in those groups.
- 2 A Yes.
- 3 Q Any member of a graduate group --
- 4 A Correct.
- 5 Q -- has the voting rights.
- 6 A Right. The graduate groups again, even when it appears as
- 7 if they are housed within a department, the graduate group
- 8 membership extends well beyond the boundaries of that
- 9 department.
- 10 Q But in terms of -- I'm going to use the term
- 11 administratively, that may not be the term you would use and so
- 12 feel free to correct me if that's the wrong term. But
- 13 administratively in terms of the reporting structure for
- 14 graduate groups, they do their work in a graduate group and
- 15 they have a chair, right?
- 16 A Yes.
- 17 Q The chair reports to the graduate dean or associate dean
- 18 for the schools with which the graduate group is affiliated,
- 19 right?
- 20 A Correct.
- 21 Q And then you talked about the reporting structure for the
- 22 associate deans on up, right?
- 23 A Yes, both to the dean of the school and into the provost's
- 24 office via the vice provost for education.
- 25 Q Right. And so a graduate group that may include faculty



1 from more than one school -- I don't know, tell me a graduate  
2 group within School of Arts & Sciences that has faculty for  
3 more than one school, just pick one.

4 A Well, most of them. Psychology, let's do psychology.

5 Q Okay. So the psychology graduate group has a graduate  
6 chair.

7 A Correct.

8 Q And that graduate chair reports to Eve Troutt Powell.

9 A Correct.

10 Q Who reports both to you and to Beth Winkelstein.

11 A Correct.

12 Q And to the extent that faculty from other schools are part  
13 of that psychology graduate group, they report to the graduate  
14 group -- it may not be hierarchical, it may more collegial, but  
15 they are responsible to the graduate group chair. The graduate  
16 group chair has sort of -- has oversight of that graduate  
17 group, right?

18 A That's correct. Graduate group chair will have both  
19 faculty directly from his or her department. In the case of  
20 psychology that has it a home department. But also faculty  
21 that are extra-departmental.

22 Q Are there limits on how the proportion of a graduate  
23 group, the faculty in a graduate group that can be from outside  
24 the home department?

25 A There are not hard and fast rules. It's really about

1 assembling the most talented group of faculty to train the next  
2 generation of scholars. So in some instances you could look at  
3 a graduate group and see a fairly generous amount of  
4 non-departmental faculty, but nonetheless graduate groups. In  
5 others, it may be more disciplined in part because it may  
6 already be a very large graduate group and it will become  
7 increasingly difficult to have enough graduate students and  
8 fellows to distribute across and so what's the value gained for  
9 a faculty member that would struggle to get a graduate student  
10 in such a situation. In some cases, constraints may be around  
11 funding. So it varies. There are no real hard and fast rules.  
12 And I think if you sampled, you'd see a mixture for sure.

13 Q You talked about the rules about a dissertation being the  
14 property of Penn but the copyright resting with the author.  
15 And in conjunction with those rules there was also reference to  
16 policies regarding patents.

17 A Yes.

18 Q From time to time, do graduate students -- does a graduate  
19 student's research result in something that is patentable?

20 A Yes.

21 Q When that happens, what's the policy about who holds the  
22 patent?

23 A The university holds the patent because by law, by Dole,  
24 any receiving federal funding of any type that supports  
25 research at a university requires the university to agree to

1 accept ownership of the intellectual property and the patents  
2 resulting from it. If it involved a graduate student, as it  
3 frequently does, and involves substantial use of university  
4 resources, both by federal law and university policy the  
5 graduate student would be defined as an inventor, which means  
6 that should any commercialization result from that discovery  
7 and issued patent, then the patent policy would distribute  
8 royalty and other revenues according to a formula that would  
9 include the graduate student.

10 Q But it wouldn't be solely the graduate student.

11 A It would not be solely the graduate student, no. I mean  
12 unless it was -- it's very difficult to imagine. I don't know  
13 of an example in a federally funding environment where work is  
14 conducted in a university laboratory directed by a principal  
15 investigator where a graduate student would be a sole inventor.  
16 That would be quite uncommon.

17 Q It tends to be teamwork, right?

18 A It tends to be teamwork, correct, as the exhibits  
19 demonstrate in terms of authorship on papers and things.

20 Q Right. And in that context if we're talking about a  
21 federally funded laboratory setting, if the work under that  
22 federal grant resulted in an invention, it's entirely possible  
23 that the invention has more than one inventor, right?

24 A Yes.

25 Q So it could be the faculty member, and a post-doc, and a

1 student.

2 A Yes.

3 Q And they would share -- there would be a proportion in  
4 which the royalties would be shared by them as well as the  
5 university --

6 A That's correct.

7 Q -- as the holder of the patent.

8 A That's correct.

9 Q Fair to say in most cases if there is a patentable result  
10 from a research, it's coming from some sort of externally  
11 funded research. That's not normally going to happen in  
12 unfunded research, right?

13 A It's much more common in federally funded research, yes.  
14 Typically, the products of doctoral dissertations that are not  
15 federally funded would fall typically under the domain of  
16 copyright law, not patent.

17 Q Okay. So you talked about the federal -- how the federal  
18 funding, so the grant application, and disbursement, and  
19 allocation, you know, use of the funds works. And with regard  
20 specifically to your testimony about the fact that the grant  
21 money virtually never covers all the real costs, particular  
22 indirect costs, right?

23 A Absolutely indirect, yeah.

24 Q Why does the university pursue grant funding?

25 A Because the backbone of science in the United States is

1 based on the federal university private sector partnership.  
2 And so it is expected that the universities in pursuit of their  
3 core missions will absorb some of the costs. That has  
4 certainly proven to be the case in the last two decades or so  
5 where universities have had increasingly to take on a larger  
6 and larger cost share as indirect cost rates go down, as the  
7 amount of federal funding available goes down. But it would be  
8 in direct opposition of what great research-intensive  
9 universities are built around, which is the creation of new  
10 knowledge, to not continue to work in that partnership  
11 framework even if the amount of university resources increases.  
12 So that's the answer.

13 Q And if you didn't, you'd be funding -- whatever research  
14 you did, you'd be funding yourselves.

15 A Entirely, yeah.

16 Q And it would be a lot less research, right?

17 A Yeah, in all likelihood. We don't have unlimited  
18 resources.

19 Q Exactly, yeah. I think the way you had described that  
20 funding relationship was -- I may be paraphrasing a bit, but  
21 essentially that the funding from the federal government, they  
22 essentially pay the -- that relationship that you were talking  
23 about, the backbone of American science, is that the federal  
24 government for some purposes pays the university to carry out  
25 research work for it.

1 A Yes.

2 Q Because the federal government benefits from that research  
3 as well, right?

4 A Yes, absolutely. That's why it's called extramural  
5 funding because all of the institutes have small budgets for  
6 intramural, which would be research performed at their sites.  
7 But increasingly the research that's performed in pursuit of a  
8 national agenda around human health is being funded by the  
9 extramural budget and performed primarily at universities but  
10 not exclusively at universities. It could also be research  
11 institutions like Wistar on our campus, for example. So it is  
12 in pursuit of what the federal government and the American  
13 public want, which is new diagnostics, new therapies, new ways  
14 to save lives.

15 Q And it's also -- I mean it's also a symbiotic relationship  
16 because it also is Penn's mission to create new knowledge  
17 through research --

18 A Correct, Correct.

19 Q -- as you were describing.

20 A Absolutely. The way it is typically viewed is that the  
21 university hires the faculty. Because they are experts in a  
22 variety of different areas, the university builds the  
23 buildings. And then research programs are developed through  
24 the creative talents of the faculty. And there are a number of  
25 different federal funding agencies that they can submit those

1 proposals to in order to seek support for it. So that's why  
2 it's a partnership. What is failed to recognize frequently is  
3 that increasingly the universities are doing more and more of  
4 what the agencies used to be able to do so that it's not just  
5 we hire the faculty, it's not just we build the buildings. We  
6 also provide the infrastructure that is not fully funded by the  
7 federal agencies.

8 Q And that infrastructure piece is the part that you were  
9 describing as the facilities and administrative costs.

10 A Correct.

11 Q And if I understand correctly, you said the administrative  
12 side is capped at 26 percent and your facilities -- you also  
13 talked about a 60 percent figure. Is that that 26 percent plus  
14 another 34?

15 A Yes.

16 Q I'm not a mathematician.

17 A That's good. You got it, that's correct.

18 Q Nor an arithmetist (ph.). Okay. So that the total F&A is  
19 the 60 percent or so.

20 A Correct.

21 Q And that amount is, just so I'm clear, if the grant is --  
22 if the direct costs are 250,000 and let's say 200 just to make  
23 my math easier, it's 200,000 for the year, then there is an  
24 additional 120,000 that goes for F&A, right?

25 A Correct.

1 Q That 120,000 goes to the administration, well, it all goes  
2 to the administration, correct?

3 A Well, it goes to a variety of places. If you use the  
4 administration -- as an example I pointed out that there are  
5 administrative offices at the university level, administration  
6 office at the school level, and at the departmental level. So  
7 just to use that as an example, the funds are proportioned  
8 commensurate with where those functions reside because where  
9 they reside is who pays the bills. So in reality there is a  
10 fair amount of indirect costs that flow to schools via the  
11 university's allocation. They know where the functions are  
12 being performed and they agree to shift those funds. That's  
13 the way it works. I mean I'm trying to keep it as simple as I  
14 possibly can.

15 Q Thank you. I know it's complicated. But essentially it  
16 comes -- the external funding from whatever source comes into  
17 the university and into the operations that you were head of --

18 A Yes.

19 Q -- in the vice provost for research position, right?

20 A Every single federal grant received is awarded to the  
21 trustees of the university of Pennsylvania, every single one.  
22 There is a principal investigator or team of investigators who  
23 prepare and submitted the proposal, and they will receive the  
24 awards commensurate with what was given. But it first goes to  
25 the representative institutional officer who is functioning at



1 the behest of the trustees. In the case of research it is the  
2 vice provost for research who manages an office called the  
3 Office of Research Services, which was listed on that award  
4 notice. And then the direct costs immediately go to the  
5 department of the principal investigator. The indirect costs  
6 are proportioned based on where those functions reside. Some  
7 of it will remain central. Some of it will go out to schools  
8 and departments.

9 Q When you say the direct costs go directly to the  
10 department of the principal investigator, is that based on  
11 where the principal investigator resides -- the principal  
12 investigator is always going to be a faculty member, right, or  
13 generally?

14 A Yes.

15 Q I don't want to make you make an absolute on that.

16 A Okay.

17 Q But it's the faculty member. It's going to be the  
18 department where they hold their primary appointment?

19 A Usually. There may be instances in which it is to the  
20 advantage of the faculty member and the university to submit a  
21 proposal under the aegis of something else. We have a large  
22 number of centers and institutes at Penn. It might be that a  
23 neuroscience grant would be more competitive if it didn't flow  
24 from a faculty member's home department but from the Mahoney  
25 Institute of Neuroscience.

1           So generally speaking it's typically going to be the home  
2 department, but not absolutely. It's a decision made about  
3 what sends the strongest statement to the federal government  
4 about the ability of the university to execute this work.

5 Q       Because you're competing with everyone else who wants the  
6 funds.

7 A       It is a very competitive landscape, yes.

8 Q       And if you want to refer back to Employer Exhibit 41,  
9 which was the grant application, and specifically you had  
10 talked about the budget -- not the budget classification.  
11 There was a section that was essentially like a mini CV.

12 A       The biographical sketch?

13 Q       Yes.

14 A       Yes, okay.

15 Q       Which I am -- oh, they're not numbered, okay. This is a  
16 few pages in.

17 A       Um-hum.

18 Q       This goes into competing for the grant, too, right?

19 A       Absolutely.

20 Q       You mentioned that it would include publications --

21 A       Yes.

22 Q       -- and information about what the research is. And you  
23 had said to make sure, they're going to want to know that this  
24 isn't just duplicative research.

25 A       Correct.

1 Q But they're also going to want -- part of what you're  
2 showing or the principal investigator is showing by providing  
3 this information is, hey, I'm capable of doing this work. I am  
4 at an institution and I have a record that shows I can do this  
5 work, and so you should give this grant to me and not Professor  
6 Joe Blow from some other university, right?

7 A Part of the biographical sketch is to demonstrate the  
8 probability of success.

9 Q Which is a very short way of saying what I just said,  
10 right?

11 A Yes.

12 Q And part of what goes into that is the fact that the  
13 person is affiliated with Penn, with all of Penn's resources  
14 and facilities, isn't that right?

15 A That is absolutely correct, yes. In fact, not in the  
16 individual biographical sketch but elsewhere in this document  
17 you will see summaries of the institutional resources that  
18 support the overall effort. It could include memberships in  
19 core centers and things like that. I could include equipment  
20 that's available that does not need to be purchased in pursuit  
21 of these goals. That also reduces the cost to the federal  
22 government, increases the likelihood for success.

23 Q When you say it increases the likelihood for success it  
24 goes into the scoring decision, doesn't it?

25 A It will go into a scoring decision, most certainly. The

1 environment in which the PI resides matters a great deal.

2 Q We've heard from a number of faculty, I mean some of them  
3 also hold associate dean positions and what have you, but  
4 faculty from Penn in this hearing as you might well imagine and  
5 as you are probably aware that they seek to in terms of  
6 attracting PhD and graduate students to their programs, they  
7 seek to get the best candidates. You would agree that that's  
8 generally true across the board, right?

9 A Yes.

10 Q One of the reasons, particularly in a department that  
11 would have the potential for grant-funded research is to have  
12 individuals who could be listed on here in the list of  
13 personnel, for example, what have you, who are going to further  
14 support the likelihood of success to get the grants. Isn't  
15 that true?

16 A To the extent that we are able to recruit the best and the  
17 brightest, and they choose a graduate group in which scientific  
18 research is conducted by -- conducted and supported by federal  
19 agencies as part of their training, being on a grant could  
20 increase the competitiveness of that grant if they are viewed  
21 as emerging young scholars. I will say that in contrast to  
22 this example, it is probably more common for a graduate student  
23 not to be listed by name. What this indicates is that this  
24 individual person is already in Dave Meaney's lab, is already  
25 working on the dissertation, and that dissertation is part of

1 this project.

2 Q Again you're referring on the page that listed -- you had  
3 referred to on direct the budget justification.

4 A Yes.

5 Q Where it lists --

6 A The pre-doctoral fellow.

7 Q -- David Meaney, and a post-doctoral student, and then a  
8 pre-doctoral fellow --

9 A Correct.

10 Q -- Ms. Chen. I assume that's -- I don't know if that's  
11 Ms. or Mr. Chen, but someone named Chen. Right.

12 A Right, yes. That is what I'm referring to.

13 Q Then when you talked about if this person during the term  
14 of this grant, because this is a multiyear grant, right?

15 A It is.

16 Q So if this person during the term of this grant obtains  
17 their PhD and moves on, hopefully gets either a post-doc  
18 somewhere or a faculty position somewhere, and someone else  
19 takes their place, you talked about that Dr. Meaney, as the  
20 principal investigator, would notify NIH.

21 A Correct.

22 Q So is part of what goes into the admissions decision in a  
23 particular graduate group, matching up potential candidates  
24 with -- finding candidates who might be able to backfill  
25 positions that are going to be opened up by people completing

1 their degree --

2 MR. JOHNS: I object to the form of the question of  
3 backfilling positions for the admission of students.

4 MS. ROSENBERGER: I know. I'm using whatever. I can use  
5 a different term.

6 THE WITNESS: The answer is no. The answer is no,  
7 admissions doesn't work that way. And Dave Meaney would not be  
8 able to go and say by the way I just had a student graduate so  
9 I have an opening, could we admit someone who fits right into  
10 that. No, it doesn't work that way, particularly because when  
11 students are admitted it's not at all clear who their mentor  
12 will be. There's too many unknowns to ever proceed in that  
13 way. That would not happen, frankly.

14 Q BY MS. ROSENBERGER: And so let's say this student obtains  
15 a PhD and moves on, and there isn't someone who decides they  
16 want to work in this lab, so then what would Dr. Meaney do?

17 A He would have to propose to the funding agency repurposing  
18 of those funds. It may be approved, it may not. In today's  
19 modular environment which I referred to, it's likely to be  
20 approved. They would say we gave you a bolus of \$250,000, tell  
21 us what you intend to do in the absence of a graduate fellow  
22 upon graduation of the one that you would like to do.  
23 Typically, that would be approved at that level. It would  
24 require an extended back and forth.

25 Q Are there typical things that the funds may be repurposed

1 for?

2 A The most likely would be partial support for another  
3 post-doc that Dr. Meaney may already have in his lab. It might  
4 be partial support for a research technician. It would almost  
5 certainly stay in the realm of performance personnel. It  
6 wouldn't move into now I'd like to go buy this piece of  
7 equipment or I'd like to change research directions. It would  
8 likely remain within personnel, but there would be a great deal  
9 of flexibility there.

10 Q We've heard about what post-docs are. A research  
11 technician is an employee?

12 A A research technician is an employee, yeah.

13 Q I didn't meant that as a pejorative term. Okay.

14 HEARING OFFICER LEACH: I'm just going to ask the witness  
15 are you okay? Do you need to take a break, a restroom break?

16 THE WITNESS: I'm okay.

17 HEARING OFFICER LEACH: Okay. I know you've been up there  
18 a long time so I just wanted to make sure.

19 THE WITNESS: I have.

20 BY MS. ROSENBERGER:

21 Q You referred to something -- oh, when you were talking  
22 about the various sources of revenue to a school, one of the  
23 things you referred to was from commercialization efforts?

24 A Right.

25 Q What is that?

1 A It refers back to the university's patent policy.  
2 Invention might result in a licensing agreement with a company  
3 that agrees to pay royalties. Our patent policy is structured  
4 in a way that the university receives a portion of that, the  
5 school receives a portion, the department receives a portion  
6 and the inventors receive a portion. Medicine in particular of  
7 late I would say is starting to realize rather significant  
8 revenue from their commercialization efforts, commercialization  
9 efforts conducted by the university but involving inventions  
10 emerging from faculty within the Perelman School of Medicine.  
11 There is a few schools including Arts and Sciences that are  
12 seeing greater revenues. But in the large budget that we are,  
13 it's a sliver in the pie chart.

14 Q When you were listing the various sources of revenue, I  
15 don't know whether you were explicit in this but I understood  
16 what you were saying in the context to indicate that these are  
17 sources by -- that are by school. It means a school will have  
18 fund-raising efforts, right?

19 A Yes.

20 Q A school will have its endowment or endowments.

21 A Yes.

22 Q A school may get certain external funding. Also a piece  
23 may go to the -- I'm not asking you to repeat it, but some may  
24 go to the federal government, right?

25 A Yeah. But --



1 Q May go to the university, itself, or to the department.

2 A Correct, correct. All go through the trustees. And the  
3 university's overall endowment includes endowment that the  
4 university holds, as well as the addition of the individual  
5 endowments held by the schools. So the overall university  
6 endowment is a summation of all of those including endowment  
7 that resides within the center of the university, not out at a  
8 school.

9 Q In the School of Arts & Sciences, you said that there were  
10 27 departments I think, right?

11 A Yes.

12 Q And 34 graduate groups.

13 A Um-hum.

14 Q You need to say yes or no.

15 A Oh, sorry, I'm nodding my head. There are 27 departments.  
16 There are 34 graduate groups.

17 Q If a student -- how many of those graduate groups cross  
18 departmental lines? You said some of them were  
19 interdisciplinary between departments.

20 A Any one that is not directly linked to a department like  
21 ancient archeology, the Mediterranean world, or --

22 Q I didn't hear that.

23 A Ancient archeology, or the Mediterranean world, or  
24 demography that aren't obviously in the department draw from  
25 multiple departments. But it's also the case that even those

1 that are in a department so that the name itself is the same, I  
2 used psychology as an example earlier, it is almost always the  
3 case that the graduate group membership is drawing from other  
4 departments which is relevant to the type of doctoral education  
5 they give. So for instance in educational psychology you may  
6 have members of that psychology graduate group in that  
7 subspecialty that are from other departments like sociology,  
8 which in Arts and Sciences is very strong around access to  
9 education. You may also have people from the Graduate School  
10 of Education who are themselves scholars of that. So even for  
11 one in which there is a one on one match between the name of  
12 the graduate group and the name of the department, it would  
13 never really define the breadth of the membership.

14 Q So when you talked about, when you referred on your direct  
15 examination to interdisciplinary graduate groups or programs,  
16 you're referring to the composition, the faculty composition of  
17 the group?

18 A Right, yeah.

19 Q In the School of Arts & Sciences, there are policies --  
20 you referred actually to a Union exhibit not a policy that is  
21 university-wide.

22 A Correct.

23 Q Deals with graduate programs, right? Yes. You're saying  
24 yes?

25 A I'm following your act. Yeah, no, absolutely there are

1 policies around doctoral education that are enforced,  
2 recommended, developed, implemented and enforced by the  
3 provost's office.

4 Q And one example you gave for instance is minimum stipends.

5 A Correct.

6 Q Then there are also -- there is a level of policies that  
7 are at the school level, the School of Arts & Sciences for  
8 example, right?

9 A I would say that there are operational issues. I think I  
10 called it local management that fall within the boundary  
11 conditions of the provost, but are decisions made at the level  
12 of the School of Arts & Sciences. An example would be the  
13 timing of qualifying exams. It would be impossible for the  
14 provost's office to establish a policy that fixes in time when  
15 those qualifying exams need to take place. That's a local  
16 decision. That's an example of one where the provost's office  
17 would take the position qualifying exams should be completed in  
18 so many years but would leave to the schools how to structure  
19 the timing and indeed the content of those qualifying exams.

20 Q So the provost's office might say it can't be any later  
21 than the, I don't know, fifth year or fourth year, but the  
22 program or school might say it has to be at the end of the  
23 second year.

24 A Absolutely, absolutely.

25 Q So the university at the provost's office level, there is

1 the broad parameters are set and then specifics that at least  
2 as long as they are compliant with those broad parameters are  
3 set at the school or program level.

4 A Correct.

5 Q To get back to the example I used before, so the provost's  
6 office has the minimum stipend but for example in School of  
7 Arts & Sciences there is a school level policy about stipends,  
8 right?

9 A The minimum stipend set by the provost is exactly what  
10 that says. No school, no graduate group can go below that  
11 minimum.

12 Q Right.

13 A Market forces, the way they are and to remain competitive  
14 will require graduate groups in different schools to on some  
15 occasions pay more than that. In a large school like Arts and  
16 Sciences, we attempt to normalize as much as possible. But if  
17 we want to remain competitive in certain fields, it may be  
18 necessary to pay more usually in the way of 12-month support  
19 versus 9 months plus years of summer support. It's really  
20 market driven. But the minimum that you cannot go below for  
21 the entire university is set by the provost.

22 Q When you talk about there being market forces at play,  
23 you're referring to what you talked about before about  
24 attracting the best and brightest to your programs. Right?

25 A Correct. And I would say across the university and

1 certainly within the provost's office, and this is a goal for  
2 all of us, a fierce commitment to remaining as competitive as  
3 we possibly can with all supports for graduate students. This  
4 is driving principle of what doctoral education is all about at  
5 Penn. And that includes but is not limited to the stipend.

6 Q Another matter that is determined at either the school or  
7 I think in the School of Arts & Sciences at the program level  
8 is whether there will be a requirement of serving as a research  
9 assistant and for how many semesters, or serving as a teaching  
10 assistant and for how many semesters, isn't that right?

11 A It is the case that the programs decide on what they  
12 believe is the optimal structure for the teaching experiences  
13 and the training experience of a graduate student and the  
14 research experiences. But all of that needs to be communicated  
15 to and approved by the graduate dean so there's no program that  
16 can start to make its own decisions.

17 Q Yeah. And I didn't mean to --

18 A Yeah, no.

19 Q I'm glad you clarified that. Sorry, I started off, off  
20 script and now I have to figure out what I missed.

21 (Pause.)

22 BY MS. ROSENBERGER:

23 Q With regard to students in a particular graduate group,  
24 their activities are supervised by the graduate group, yes?

25 A By the graduate group and when they reach the point of

1 what we would call all-but dissertation by their advisor or in  
2 some cases a group of advisors --

3 Q Who -- oh, I'm sorry.

4 A No, it doesn't mean that the graduate group and its chair  
5 doesn't continue to meet regularly and play a very important  
6 role. But there is not an added element of the role of the PhD  
7 advisor.

8 Q And -- oh, I'm sorry. I keep cutting you off.

9 A No, that's okay.

10 Q The advisor is someone from within the graduate group as a  
11 general rule?

12 A Yes.

13 Q Or the group of advisors, they're faculty from --

14 A It can certainly in some fields not be one person but a  
15 group of people.

16 Q But they would be from within the graduate group.

17 A Correct.

18 Q You talked about students traveling for field work during  
19 the summer. Students also travel for field work in the spring  
20 and fall, isn't that true?

21 A Much less so because during the academic year the faculty  
22 are all present unless they're on leave so committee meetings  
23 are always scheduled during the academic year. Courses, as we  
24 talked about, are concentrated in the academic year. It's not  
25 impossible by any means for a graduate fellow to travel during

1 the academic year, but it's much more common during the summer.  
2 And part of that is also because if they are working with their  
3 graduate advisor perhaps at an archeological dig, the time that  
4 he or she is going to go is going to be the summer because they  
5 don't have the flexibility to leave during the academic year.  
6 They have obligations to the university. So it would be much  
7 more common for it to happen in the summer and that is indeed  
8 the case.

9 Q Some of the travel that occurs whether summer or at other  
10 times of year include -- some of the programs in the School of  
11 Arts & Sciences have a language requirement, correct?

12 A Correct.

13 Q To learn say, I don't know, Arabic or Japanese, or  
14 whatever, and that not infrequently involves travel to another  
15 country to engage in intensive language study.

16 A It certainly can. We have the Penn Language Center that  
17 has some of the most advanced language teaching of any  
18 university, the largest number of language taught. That said  
19 there is no substitute for immersion in a culture and in a  
20 country to get a real speaker's understanding and competency of  
21 the language. And so in some cases to fulfill the largest  
22 language requirements some time in-country can be beneficial.  
23 It may occur if there is as part of their study a semester  
24 abroad. It may occur as a two-week immersion. It may occur  
25 during the summer if they are already in-country working with

1 the archives or at various field sites. But, yes, I do agree  
2 that travel in part facilitates achieving the language  
3 requirement particularly if it's complete fluency.

4 Q You referred -- when you were talking about the board of  
5 overseers for your school.

6 A Yes.

7 Q I'm going to use that in particular. You said you don't  
8 have fiduciary responsibility. What do you mean by fiduciary  
9 responsibility?

10 A They do not approve nor are they required to approve our  
11 budget. We share with them the components of our budget, our  
12 strategies for enhancing revenue streams and cost containment  
13 on the expense side. We seek their views. These are very  
14 successful people who love Penn because they are alumni of Penn  
15 and have made Penn a passion. And so they come from all walks  
16 of life and they have great perspectives. But I do not need  
17 them to approve my budget. I do not need them to approve  
18 authorized expenses. That's the difference between fiduciary  
19 versus advisory.

20 Q If you would look at Employer Exhibit 40 which is the big  
21 organizational chart.

22 A Yes.

23 Q Just so we're clear on what we're looking at, this is not  
24 the entire organizational chart of Penn.

25 A It is not. This is the academic structure. If you wanted



1 to see the whole chart you would see the presidential centers  
2 that manage the business of the university, the numerous vice  
3 presidents that oversee purchasing, communication, general  
4 counsel, public safety, many of the development, and alumni at  
5 a university level. Those are vice presidents. Some of them  
6 report through the executive vice president of the university.  
7 Some of them are direct reports to the president. So the  
8 missing piece of this is what you might call the complex  
9 business of running the university, the non-academic side.

10 In fact, for any successful university and I would put  
11 Penn on that list there is the seamless flow from academic to  
12 non-academic. And there's probably not a great deal of value  
13 in trying to develop firm lines between one or the other. Any  
14 successful university needs to draw upon all of its resources  
15 in pursuit of its core missions. But that is in fact what's  
16 missing here.

17 Q And in that section, one thing I noticed in particular  
18 that's not here is the position you used to hold which is the  
19 vice provost for research. But you would put that in sort of  
20 that other section?

21 A No. I would say the vice provost for research would be in  
22 an org chart around academic structure if it were not  
23 specifically focused on graduate education. The title of the  
24 vice provost for research has come up in our conversations --

25 Q Yes.

1 A -- because of the key role he or she plays in the  
2 management of the research enterprise which is very much  
3 academic. But it's not a direct managerial or oversight role  
4 for graduate education.

5 Q So I would be correct in understanding this chart to  
6 represent the structure of academics specifically related to  
7 graduate programs?

8 A That's correct. So if you just look at my school, when we  
9 looked at the org chart of Arts and Sciences, a PhD graduate  
10 dean, Associate Dean Eve Troutt Powell was not the only one  
11 shown so each one of these could be expanded considerably to  
12 see the overall structure of the university.

13 MS. ROSENBERGER: I think I'm done. Just let me double  
14 check. That's all I have on cross for now. Thank you.

15 HEARING OFFICER LEACH: Does the Employer have any follow-  
16 up?

17 MR. JOHNS: Just two or three questions.

18 HEARING OFFICER LEACH: Okay.

19 REDIRECT EXAMINATION

20 BY MR. JOHNS:

21 Q Dr. Fluharty, which students would have more in common  
22 with respect to their research activities, chemistry and  
23 engineering or chemistry and the Annenberg School of  
24 Communication?

25 A Chemistry and engineering.

1 Q How about chemistry and engineering or chemistry and the  
2 School of Social Policy & Practice?

3 A Chemistry and engineering.

4 Q At SAS, if students teach as part of their degree  
5 requirements, what years do they typically teach?

6 A The Benjamin Franklin fellows, which is the term used to  
7 describe graduate student supported not by external funding but  
8 by institutional funds, our own graduate fellowships, typically  
9 teach in Years 2 and 3.

10 Q So they don't typically teach in Years 4 and 5?

11 A It's not unheard of but it would be much less common. I  
12 will say there are always exceptions.

13 Q Why is the fellowship program structured so that Years 4  
14 and 5 don't have that teaching requirement?

15 A So that they can focus on their dissertation and complete  
16 their dissertation in a timely manner.

17 MR. JOHNS: That's all I have. Thank you, Dr. Fluharty.  
18 Ms. Leach may have some questions for you, too.

19 HEARING OFFICER LEACH: Yes, let me just check and see if  
20 I have anything. Give me a moment, please. I'm just looking  
21 through my notes to see if I highlighted anything. When you  
22 talked about who confers degrees, I think you said the  
23 undergraduate degree would say it's from -- if it was from SAS,  
24 it would say SAS. What would a PhD degree say on it?

25 THE WITNESS: University of Pennsylvania. It will list

1 the graduate group in which the degree requirements were  
2 completed so it would say PhD in, but it is conferred not by an  
3 individual dean or any school but rather by an institutional  
4 official, in this case the vice provost for education who  
5 oversees graduate education for the entire university.

6 HEARING OFFICER LEACH: When you talked about Employer 42,  
7 which is the -- I guess the award letter for the grant, and  
8 there was a question are there any restrictions on how the  
9 money is spent, I think you said if the PI changes then that  
10 has to be reported to NIH. Are there any other restrictions on  
11 how the money is spent?

12 THE WITNESS: The modular grant format now is to promote  
13 as much flexibility as possible and to empower PIs to think  
14 creatively about how to use funds. The exception I noted is  
15 that personnel changes would require approval. The only one  
16 that is a challenge would be a change in PI and the reasoning  
17 is this. The grant was awarded to a faculty member at the  
18 University of Pennsylvania because he or she is deemed an  
19 expert in a given field. If they leave it behooves the  
20 university to prove there is another individual who can conduct  
21 that research with the same high standards.

22 HEARING OFFICER LEACH: So would you say that as long as  
23 -- I think E-41 is the grant application.

24 THE WITNESS: Yes.

25 HEARING OFFICER LEACH: So would you say as long as the

1 money is spent pursuant to what's listed in E-41, it can be  
2 used for whatever purpose is necessarily related to that.

3 THE WITNESS: Certainly outside of personnel. Personnel  
4 is the one that is watched more carefully, again the PI, the  
5 principal investigator being the most significant. And it's  
6 because the National Institutes of Health is a careful  
7 custodian of the public money that they are empowered and they  
8 want to make sure that teams are assembled to do good research.  
9 The principal investigator is the only one in which you would  
10 need to submit a clear plan of how you will replace the  
11 principal investigator if he or she is not directing the  
12 research. What we call the support personnel has much bigger  
13 flexibility.

14 HEARING OFFICER LEACH: E-44, the dissertation manual, it  
15 has a date of 2010. Is this the most updated version of this?

16 THE WITNESS: For the university one, I can't say if there  
17 has been a new one yet produced. I know that there has been  
18 quite a --

19 HEARING OFFICER LEACH: Oh, I'm sorry. You don't have  
20 that. I apologize.

21 THE WITNESS: Oh, you have it, yeah, I don't have it. I'm  
22 looking for it and I don't have it.

23 MR. JOHNS: Yeah, we were short one.

24 HEARING OFFICER LEACH: I was just looking on the front.  
25 It says 2010.

1 THE WITNESS: Yes.

2 HEARING OFFICER LEACH: I just wondered is that the most  
3 recent?

4 THE WITNESS: I think that there is continued work on it  
5 but this may be the most recent fully-assembled one, but I  
6 don't know that with certainty.

7 HEARING OFFICER LEACH: Okay. So there was some  
8 discussion about -- I believe the Employer asked is it possible  
9 for -- there was talk about dissertation, would there be a  
10 dissertation advisor for students. I guess the dissertation  
11 advisor would come from faculty outside of SAS. Did you say  
12 yes to that?

13 THE WITNESS: Yes. If they're a member of the graduate  
14 group and there are many graduate groups that have faculty  
15 outside of Arts and Sciences, with the permission of the  
16 associate dean for graduate studies, yes. And that's true in  
17 most of the schools.

18 HEARING OFFICER LEACH: That's all I have. Does the  
19 Employer have any other questions?

20 MR. JOHNS: No question.

21 HEARING OFFICER LEACH: Union?

22 MS. ROSENBERGER: No.

23 HEARING OFFICER LEACH: Okay, you're finished. Thank you  
24 very much for your time today. I appreciate it.

25 THE WITNESS: All right, you're quite welcome.

1 (Witness excused.)

2 HEARING OFFICER LEACH: Can we go off the record?

3 (Off the record from 12:15 p.m. to 12:22 p.m.)

4 HEARING OFFICER LEACH: The Employer can call his next  
5 witness.

6 MR. FRYMAN: Employer calls Kim Hoftiezer.

7 HEARING OFFICER LEACH: Good afternoon.

8 THE WITNESS: Hi.

9 HEARING OFFICER LEACH: Can you say and spell your first  
10 and last name for the record, please?

11 THE WITNESS: Yes, Kim Hoftiezer, K-I-M, H-O-F-T-I-E-Z as  
12 in zebra, E-R.

13 HEARING OFFICER LEACH: Can you raise your right hand?  
14 (Whereupon,

15 KIM HOFTIEZER,  
16 was called as a witness by and on behalf of the Employer, and  
17 after having been duly sworn was examined and testified as  
18 follows:)

19 HEARING OFFICER LEACH: Okay.

20 MR. FRYMAN: Thank you.

21 DIRECT EXAMINATION

22 BY MR. FRYMAN:

23 Q Good afternoon, Ms. Hoftiezer. Where are you employed?

24 A University of Pennsylvania.

25 Q In what role?

1 A I am the director of human resources for the University  
2 Libraries.

3 Q What do you do as the director of human resources for the  
4 University Libraries?

5 A At the University Libraries we have 14 libraries and so we  
6 have a staff of 3. What I do is I facilitate performance  
7 evaluations, salary increases, trainings, anything to do with  
8 HR, HR related interactions.

9 Q I'm sorry. It's hard to hear sometimes with the air  
10 conditioning. You said a staff of how many?

11 A I have a staff of three.

12 Q Who are the other people on your staff.

13 A I have an administrative assistant, administrative  
14 coordinator, and an HR coordinator.

15 Q And the three of you are responsible for others who work  
16 in the University Libraries?

17 A Yes. We have 300 full-time employees.

18 Q How long have you held this role as director of HR for the  
19 University Libraries?

20 A It'll be seven years in September.

21 Q Now you mentioned this staff of 300 full-time employees.  
22 Do the University Libraries also employ student workers?

23 A Yes.

24 Q That's a term or a phrase that you're familiar with?

25 A Yes.



1 Q What about something called a teaching assistant? Did the  
2 University Libraries within that staff of 300 student workers,  
3 is there anybody called a teaching assistant?

4 A No.

5 Q Anyone called a teaching fellow?

6 A No.

7 Q Anyone who serves as a research assistant?

8 A No.

9 Q Anyone who serves the libraries as a research fellow?

10 A No.

11 Q Do you or your staff of three have any responsibility for  
12 any HR functions with respect to any teaching assistants?

13 A No.

14 Q Do you or the members of your staff have any HR  
15 responsibility for any teaching fellows?

16 A No.

17 Q For any research assistants?

18 A No.

19 Q For any research fellows?

20 A No.

21 Q I want to go back to these student workers who work in the  
22 University Libraries. Focusing on the last spring semester,  
23 that would be the spring 2017 academic semester, approximately  
24 how many student workers worked in the University Libraries?

25 A 350.

1 Q Of those 350, approximately how many were graduate  
2 students?

3 A 160.

4 Q Are there student workers working in University Libraries  
5 over the summer?

6 A Yes.

7 Q Does that number of student workers over the summer stay  
8 the same or approximately the same as those in the academic  
9 term?

10 A No.

11 Q How does it change?

12 A It significantly drops. Number one, because all of the  
13 students -- many of the students leave the campus, which means  
14 that we don't have a lot of students to hire and we don't need  
15 a lot of students to be employed to help students that aren't  
16 there.

17 Q Do the hours of the libraries change in the summer?

18 A Yes. We have a lot -- we're open a lot less. We open  
19 approximately 9:00 and close at either at 9:00 p.m. or 5:00,  
20 depending on the day of the week.

21 Q How does that contrast with the academic year?

22 A The academic year, we are normally open until midnight  
23 except during reading period and then we're open till 2:00.

24 Q How are student workers paid?

25 A They're paid hourly.

1 Q Do they track or report their hours?

2 A They do. We have what's called an e-timesheet system.  
3 It's all web based.

4 Q So could you tell us generally what do student workers in  
5 the University Libraries do?

6 A Our student workers perform basic administrative type  
7 functions that you would expect at a library. They sit at the  
8 circulation desk. They check out books. They check in books  
9 or other library materials. They answer customer inquiries  
10 when people come into -- when patrons come into the library.  
11 They shelve books. We also have what's called an interlibrary  
12 loan and that is if we don't have the material that you're  
13 looking for, we will get it from another university so we have  
14 a lot of deliveries. We have staff that are just -- their main  
15 job is to open boxes and scan in the barcode from whatever  
16 library it is and notify through the computer system, notify  
17 the patron that their materials have arrived.

18 Q When you just mentioned staff with respect to that  
19 function, you're referring to student workers?

20 A Yes, student workers do that function. We have of course  
21 some of our full-time employees are there as well.

22 Q The student workers do filing?

23 A Yes.

24 Q Data entry?

25 A Yes.

1 Q Delivery of books between libraries?

2 A Yes, we do that, lots of returning books to stacks.

3 MR. FRYMAN: That's all the questions I have. Thank you.

4 CROSS-EXAMINATION

5 BY MS. ROSENBERGER:

6 Q Good afternoon. I'm Amy Rosenberger and I'm one of the  
7 lawyers representing the Union in this case. I just have a few  
8 questions for you.

9 A Sure.

10 Q Is the library system within Penn the only place where  
11 individuals are employed with the title student worker?

12 A I don't know. I would assume because there is a student  
13 employment office that there would be other student workers on  
14 campus. But I don't -- I only know -- I've only ever worked at  
15 the library system at Penn.

16 Q You said during spring of 2017 about 160 of the 350  
17 student workers were graduate students, right?

18 A Yes.

19 Q Do you have a breakdown of how many of them were master  
20 students versus PhD?

21 A I don't think so. We were able to just take the list and  
22 look at the graduate students versus undergraduate students.

23 Q The term student worker, that's a payroll classification,  
24 isn't it?

25 A Yes.

1 Q Does anybody at the library work as a grader?

2 A No.

3 Q Or as a tutor?

4 A No.

5 MS. ROSENBERGER: That's all I have on cross.

6 HEARING OFFICER LEACH: Anything from the Employer?

7 MR. FRYMAN: No follow-up.

8 HEARING OFFICER LEACH: I just have just a couple of  
9 clarification questions. You said there were 300 full-time  
10 employees and then in spring 2017 you had 350 student workers.  
11 That's in addition to --

12 THE WITNESS: Yes.

13 HEARING OFFICER LEACH: -- the full-time employees?

14 THE WITNESS: Yes.

15 HEARING OFFICER LEACH: Okay. You mentioned a reading  
16 period. What is that?

17 THE WITNESS: That is the time between class being over  
18 and finals. There's like reading days where there's no classes  
19 scheduled, no activities scheduled, and we open, like we're  
20 open a lot more. We have tons of students, everybody, so  
21 activity.

22 MS. ROSENBERGER: I missed the last part?

23 THE WITNESS: Oh, just it's like a free-for-all, I feel.  
24 Everything smells like food. The students are sleeping in the  
25 couches. You find them everywhere. They're all just cramming.

1 HEARING OFFICER LEACH: Do you know whether any of the  
2 student workers that you had were grad students also held other  
3 positions like a TA or an RA?

4 THE WITNESS: Not that I'm aware of, no.

5 HEARING OFFICER LEACH: Does that mean you think their  
6 only position would have been library student worker?

7 THE WITNESS: Right, library student worker. But it is  
8 just student worker in the payroll system.

9 HEARING OFFICER LEACH: Okay. Do you know whether when  
10 you're identified as a student worker in the payroll system  
11 does it tell where they work?

12 THE WITNESS: It doesn't say student worker library. It  
13 just says student worker. If you drill down into the payroll  
14 system it would have an organizational code to how we pay them  
15 based on accounting.

16 HEARING OFFICER LEACH: But that doesn't have anything to  
17 do with the location where they work or the area where they are  
18 working?

19 THE WITNESS: Well, that's how they are paid. So if I  
20 have a student worker that works in the library, our library  
21 operating budget would pay that. Is that --

22 HEARING OFFICER LEACH: No. When you said if you drill  
23 down there is a code, I just wondered does that code refer to  
24 the location where they work.

25 THE WITNESS: Yes, because it would be, it would be based

1 on where the money is coming from to pay them.

2 HEARING OFFICER LEACH: Okay. I don't have anything else.

3 Does the Employer?

4 MR. FRYMAN: Do not.

5 HEARING OFFICER LEACH: Union?

6 MS. ROSENBERGER: Just one, just so the record is

7 complete.

8 HEARING OFFICER LEACH: Sure.

9 BY MS. ROSENBERGER:

10 Q The 300 full-time employees that you referred to that  
11 aren't student workers. Some group of them are already in a  
12 bargaining unit represented by a union.

13 A Correct.

14 Q They're represented by AFSCME?

15 A AFSCME, Local 590.

16 MS. ROSENBERGER: That's all I have.

17 HEARING OFFICER LEACH: Does the Employer have anything?

18 MR. FRYMAN: No.

19 HEARING OFFICER LEACH: Okay, thank you.

20 THE WITNESS: All right, you're welcome.

21 (Witness excused.)

22 HEARING OFFICER LEACH: Can we go off the record?

23 (Whereupon, at 12:34 p.m., a lunch recess was taken.)

24

1 A F T E R N O O N S E S S I O N

2 (Time Noted: 2:02 p.m.)

3 HEARING OFFICER LEACH: The Employer can call its next  
4 witness.

5 MR. FRYMAN: The Employer calls Dr. Christopher Murray.

6 HEARING OFFICER LEACH: Good afternoon.

7 THE WITNESS: Good afternoon.

8 HEARING OFFICER LEACH: How are you?

9 THE WITNESS: I'm good, thanks.

10 HEARING OFFICER LEACH: Good. Can you say and spell your  
11 first and last name for the record, please?

12 THE WITNESS: Yes. My name is Christopher Murray, that's  
13 C-H-R-I-S-T-O-P-H-E-R, Murray, M-U-R-R-A-Y.

14 HEARING OFFICER LEACH: Can you raise your right hand,  
15 please?

16 THE WITNESS: Yes, I can.

17 (Whereupon,

18 CHRISTOPHER MURRAY,  
19 was called as a witness by and on behalf of the Employer, and  
20 after having been duly sworn was examined and testified as  
21 follows:)

22 HEARING OFFICER LEACH: Thank you.

23 DIRECT EXAMINATION

24 BY MR. FRYMAN:

25 Q Thank you. Good afternoon, Dr. Murray.



1 A Good afternoon.

2 Q Where are you employed?

3 A At the University of Pennsylvania.

4 Q In what position or capacity?

5 A I am a professor of chemistry and of material science, and  
6 a member of both the faculties of Arts and Sciences and  
7 Engineering.

8 Q And if you can try your best, sometimes the air  
9 conditioning cuts off.

10 A Yeah.

11 Q But when it comes back on, you have to try and keep your  
12 voice up.

13 A Sure.

14 Q So am I to understand you have faculty and appointments in  
15 two different schools?

16 A Yes, that's right. I'm a tenured full professor both in  
17 the School of Arts & Sciences and in the School of Engineering  
18 and Applied Science.

19 Q Are you familiar with something called PIK, P-I-K?

20 A Yes, the PIK or Penn Integrates Knowledge initiative was  
21 the program that recruited me from industry to come to Penn and  
22 it's part of an expanding effort to bridge between the school  
23 structures at Penn in both teaching and in research  
24 opportunities.

25 Q I want to talk a little bit more about that. But before

1 we do, how long have you been at Penn?

2 A 10 years.

3 Q You said you were recruited from industry. Where did you  
4 work in industry?

5 A I was a researcher and research manager at IBM research in  
6 Yorktown Heights, New York, for about 11 years, almost 12  
7 years.

8 Q Did you go to work for IBM after you completed your  
9 academic training?

10 A Yes. I did my graduate work at MIT and then took up a  
11 position as a full-time research member at IBM immediately  
12 afterwards.

13 Q Let's go back to this Penn Integrates Knowledge. How long  
14 approximately has that -- is it fair to call it a program?

15 A It was initiated as an effort to foster even greater  
16 interdisciplinary research and interconnections. Actually, I  
17 think I was maybe the first or second professor that was  
18 approached, the first to arrive. That was in the area of  
19 anthropology, but that was the start of the program  
20 approximately 10 years ago. It has now grown to be about 20  
21 faculty members and continuing to expand.

22 Q These faculty members are specifically designated as being  
23 part of this program?

24 A Right. The requirement is that individuals are selected  
25 that can be independently evaluated and tenured in two schools.

1 Each department and each school have to go through their own  
2 formal processes, but the goal is to find people that represent  
3 the caliber in disciplines that bridge between those  
4 traditional subunits within the university.

5 Q What is your understanding of why Penn has such a program?

6 A Penn has always had a tradition of interdisciplinary  
7 teaching and research, but we still operate with schools and  
8 some processes that are separate at the administrative level.  
9 Most of that is kind of transparent to the students. But  
10 having people that know and interact deeply across those  
11 boundaries is really valued. So we have a couple of ways to do  
12 that. The PIK professors is an effort to try to add extra  
13 visibility to that process. The secondary appointments and the  
14 other mechanisms that we use are also part of that. It's an  
15 effort to formalize the value and promote interdisciplinary  
16 research. We have people working with faculty across different  
17 schools, hiring and recruiting students from different schools,  
18 having them work together in different types of  
19 interdisciplinary projects.

20 Q What does that mean for the students?

21 A Hopefully it means that students are attracted to some of  
22 the exciting years that come at the boundaries between some of  
23 the traditional disciplines. I think some of the greatest  
24 benefits come from just being exposed to different ways of  
25 solving problems and different approaches. Those could be

1 technical in terms of techniques that are applied. It could be  
2 different backgrounds that bring a special insight to a  
3 project. In our own work, it's in materials chemistry, but we  
4 do work that goes from fundamental development of chemical  
5 methods to synthesized materials, all the way to integrate them  
6 and to use them in devices and things that are closer to  
7 technology. Students from the chemistry program and the  
8 engineering program can contribute to anything on that  
9 spectrum.

10 (Employer's E-45 identified.)

11 BY MR. FRYMAN:

12 Q Dr. Murray, I've handed you what we've marked for  
13 identification as Employer's 45. Is this a piece that comes  
14 from the PIK web site?

15 A Yes. I believe this is part of the effort to raise the  
16 visibility of what was intended in the PIK program and also  
17 point out that it's integrated together with the Penn compact  
18 and larger sort of vision for development of the university.

19 Q This provides just a very brief overview of the Penn  
20 Integrates Knowledge program?

21 A Yes.

22 MR. FRYMAN: I'd move the admission of 45.

23 MS. ROSENBERGER: No objection.

24 HEARING OFFICER LEACH: Employer 45 is received.

25 (Employer's E-45 received.)

1 (Employer's E-46 identified.)

2 BY MR. FRYMAN:

3 Q Now Employer's 46, is this -- well, what is it?

4 A This was a piece that was developed for that same web site  
5 helping to sort of put together small vignettes on the PIK  
6 professors. This is one that focuses on myself and just gives  
7 a slight description of background and interests. This was  
8 part of an overhaul I guess a couple of years ago of the PIK  
9 web site in an effort to continue to extend the discussion on  
10 the activities of that program across campus.

11 Q On the first page it notes your appointments in both SEAS,  
12 or the School of Engineering and Applied Science, and then SAS,  
13 the School of Arts & Sciences. Are you also familiar with the  
14 term graduate group?

15 A Yes. So --

16 Q Let me just if I could are you a member of any graduate  
17 groups?

18 A I am a member of the chemistry graduate group, the  
19 material science graduate group, and the physics graduate  
20 group.

21 Q The chemistry graduate group that resides for lack of a  
22 better term in the School of Arts & Sciences?

23 A The majority of the participants are in the School of Arts  
24 & Sciences, but there are members that contribute from  
25 medicine, from engineering, and from other disciplines, too.

1 MS. ROSENBERGER: I didn't hear the end of the sentence.  
2 I'm sorry.

3 THE WITNESS: Oh, I'm sorry. Yeah, I apologize. So the  
4 graduate group in chemistry, the majority of the participants  
5 are from the department of chemistry but there are additional  
6 participants from physics, but also from other schools,  
7 Engineering and the School of Medicine most prominent.

8 BY MR. FRYMAN:

9 Q And physics, that's also a department within the School of  
10 Arts & Sciences?

11 A Correct.

12 Q You mentioned that you're also a member of the material  
13 science graduate group?

14 A Yes. Again, material science makes up the majority of the  
15 participants in that group, but we have participants from  
16 chemistry, from -- actually, several participants from  
17 chemistry, mechanical engineering, chemical engineering, all of  
18 the electrical engineering, all of the area -- and physics, so  
19 all of the areas that do work that crosses those boundaries  
20 because people in physics and in chemistry can and do take  
21 graduate students from material science and vice versa.

22 Q Again, material science, although it has faculty members  
23 outside the School of Engineering that largely "resides" in the  
24 School of Engineering.

25 A Yeah, it's the majority of the participants. Although,

1 actually material science is a small department so there may  
2 actually be almost an equal number of members of the graduate  
3 group that are outside material science because we are the  
4 smallest in the engineering school.

5 Q Just looking at the second page down at the bottom there,  
6 it mentions that there are other web pages that have profiles  
7 for you in Arts and Sciences, in engineering, and in chemistry.  
8 Is that right?

9 A Yes.

10 Q And then the final page has some contact information so  
11 you have contact information it appears both in the School of  
12 Arts & Sciences and in the School of Engineering?

13 A Right. I have offices in both. I work between those  
14 depending on sort of where my teaching responsibilities lie  
15 mostly. In the semesters when I'm teaching in material  
16 science, I tend to do more work from my MSE office. And in the  
17 semesters I'm teaching from chemistry, I do it, it's mostly for  
18 accessibility to the students in the classes.

19 Q Can chemistry students come see you in your engineering  
20 office?

21 A Yes. I have certain hours in both. Whenever I had out  
22 information at the start of the year on how to find me, I set  
23 out sort of when to find me in which place and then we work  
24 around that.

25 MR. FRYMAN: I move Employer's 46.

1 MS. ROSENBERGER: No objection.

2 HEARING OFFICER LEACH: Employer 46 is received.

3 (Employer's E-46 received.)

4 (Employer's E-47 identified.)

5 BY MR. FRYMAN:

6 Q Employer's 47, what is this?

7 A This is a relatively recent listing of the current PIK  
8 professors and keynotes in some cases on the chairs that they  
9 hold. And so each of these individuals holds appointments in  
10 at least two schools, but in some cases it may actually be  
11 three. But several like myself have cross appointments in  
12 Engineering and Arts and Sciences. We have people that cross  
13 between Engineering and Wharton, a lot of medical --  
14 interactions with the medical school. It represents the core  
15 of this program that links research and training across the  
16 schools' web structure at the University of Pennsylvania.

17 Q If you'll forgive me, Dr. Murray, I'm going to get  
18 personal for a moment.

19 A Sure.

20 Q Are you married?

21 A I am.

22 Q Where is your wife employed?

23 A She is also a professor at the University of Pennsylvania.  
24 She has a primary appointment in electrical engineering, in the  
25 School of Engineering and Applied Science, but she also has



1 secondary appointments in chemistry and in material science.  
2 Her work also is at the boundary and she was also a manager and  
3 researcher at IBM Research prior to that, so coming from  
4 industry to a new world in academia.

5 Q Sounds like it was quite the package deal that Penn got.

6 A Yeah. Good opportunities for us, too.

7 Q Given your work in chemistry and material science, do you  
8 have a lab?

9 A Yes. We have -- the majority of the square footage of our  
10 labs are in the chemistry building because the hoods and  
11 infrastructure to do the synthetic chemistry sort of is the  
12 largest block. But we also have labs in the -- a laboratory  
13 for research on the structure of matter, the LRSM, and that's  
14 where we carry out some of our characterization experiments.  
15 There are other spaces on campus that we have shared equipment  
16 in labs as well, so a few localized medicines (ph.). A good  
17 portion of the work that we carry out these days also is done  
18 in the Singh Center for Nanotechnology, which is a joint effort  
19 between SEAS and SAS, focused on instrumentation and shared  
20 fabrication facilities.

21 Q I want to ask you a little bit about that in a moment, but  
22 let's just stay with your labs first for a moment. Graduate  
23 students work in either of these labs?

24 A Yes. My graduate students, they work across all those  
25 spaces. Just out of convenience they all sit together in the

1 chemistry, within the chemistry building, so my engineering  
2 students and chemistry students all are interchangeable. They  
3 have spaces next to the major synthetic labs and then they move  
4 from there to do whatever work they need. Several have desks  
5 also in electrical engineering because that's where they carry  
6 out some of their work. And members of other groups from  
7 engineering actually have desks in my lab because their  
8 students use our laboratory space to carry out their research,  
9 too. It's kind of a mixed environment.

10 Q When you're talking about these graduate students sitting  
11 together, these are PhD candidates both in the chemistry  
12 graduate group and in the material science graduate group?

13 A That's correct, along with undergraduates, master students  
14 from both schools, post-docs, so we have a space that basically  
15 allows people to mix and choose what's comfortable and  
16 effective in terms of what they work on. But you wouldn't be  
17 able to tell if you walked in on any given day which of my  
18 students were from engineering and which were from chemistry in  
19 terms of their activities in the lab, or what they were doing,  
20 or even what they were studying actually.

21 Q Now I take it in this environment you are externally  
22 funded?

23 A Majority of our funding comes from external sources. We  
24 sometimes get involved with projects and small programs that  
25 come to the university, but the majority of the research is

1 driven by opportunities outside, other federal industrial  
2 research or sometimes through philanthropical organizations.

3 Q Do you serve as what we've heard referred to as the PI or  
4 principal investigator on any of these grants?

5 A I do. I am the principal investigator on some and a co-PI  
6 on other grants in various combinations. That changes over  
7 time.

8 Q Actually, you're getting to my next question. Some of  
9 these grants there's more than one PI?

10 A Quite often actually. Increasingly these days, most of  
11 the funding comes from multi-investigator efforts. There tends  
12 to be and I think probably quite rightly an effort to try to  
13 get work that draws on different sets of skills so many of the  
14 grants specifically emphasize having people coming from  
15 different backgrounds, more basic science, more applied,  
16 working together to advance an area. It's actually more common  
17 to have multi-investigator sources of funding than it is single  
18 investigator these days.

19 Q And on these where you have multi-investigators, do these  
20 faculty members cut across any of Penn's schools?

21 A Definitely, and actually across Penn schools but also to  
22 other institutions, too. It is quite common to have  
23 collaborators that are at institutions almost anywhere in the  
24 country, although geographically it's much more convenient to  
25 collaborate when we can move back and forth readily. Penn's

1 faculty have always worked together in terms of developing  
2 science. It's just part of its history. But now it is  
3 actually part of the sort of ingrained in the support structure  
4 of research to have those multi-investigator teams and teams of  
5 students.

6 Q And so I understand you're a one-person cut across  
7 schools, but will you have any other co-investigators in  
8 engineering and SAS?

9 A Sure, in many cases. Actually, quite a few NSF grants,  
10 the National Science Foundation grants actually call out that  
11 there has to be. They actually require that there be  
12 investigators from different divisions within NSF in order to  
13 qualify to apply for the funding. And quite often those are  
14 selected to be between traditional disciplines in applied  
15 science and basic science so you can't even, you know, you  
16 can't even play if you don't have skills that cross those  
17 boundaries in many cases.

18 Q So that's the faculty. Now let's talk about the students.  
19 I believe you mentioned that you'll have chemistry and  
20 engineering students working side by side in the lab. Will  
21 they be -- will you have an engineering PhD student and a  
22 chemistry PhD student working on the same grant?

23 A Quite often if the grant is large enough to support two  
24 positions. Actually, even on grants that are smaller often  
25 there is partial funding so a student will work a portion of

1 their time contributing to one grant and a portion of their  
2 time supported on other grants. And that gives them sort of  
3 the flexibility to explore a little bit, sort of which areas  
4 interest them more. But it's actually more common to have  
5 people working together on those efforts or supported by those  
6 efforts than in a solo activity. That almost doesn't exist  
7 anymore actually. It was a model from maybe 20 or 30 years  
8 ago.

9 Q Do you serve as a faculty advisor or a dissertation  
10 advisor?

11 A Yes. Just like my colleagues, we serve on many. We  
12 advise students and serve on the thesis committees for many  
13 students. In my case, the majority are in chemistry or in  
14 material science, but I also serve on committees for students  
15 in chemical engineering, electrical engineering,  
16 bioengineering, and some of my colleagues who don't have formal  
17 appointments even in graduate groups do also serve in that  
18 role. It's actually quite common to have, in some departments  
19 have the requirement of an outside member of the committee as  
20 part of the advocacy for the students and to provide some  
21 objectivity in the process. It is the norm for faculty to have  
22 to cross those boundaries.

23 Q I assume you also teach?

24 A I do. I teach -- most of the time I try to structure it  
25 so I teach one semester in each school. Every so often things

1 will turn out that I'm doubled up and teaching two classes but  
2 that's rare. I usually teach the fall semesters in material  
3 science and spring semesters in chemistry.

4 Q Do you have PhD students who serve as teaching assistants  
5 or teaching fellows in any of your courses?

6 A I do. It depends on the size of the course and what the  
7 needs are there. The chemistry students and material science  
8 students at different times serve as teaching assistant or  
9 graders. And the number is determined by how many students are  
10 in the class and what the workload is.

11 Q And so you supervise or oversee the work of both  
12 engineering teaching assistants and chemistry teaching  
13 assistants?

14 A Yes.

15 Q Earlier you mentioned something called the Singh Center  
16 for Nanotechnology, is that right?

17 A Yes.

18 Q What is that? Tell us about that.

19 A That's an interdisciplinary center. It's focused on nano  
20 scale science and technology investigations. It was opened a  
21 little over two years ago, but it brings together modern  
22 experimental space for state of the art fabrication and  
23 characterization in a shared access mode, as well as some more  
24 specialized private labs for precision measurement and other  
25 pieces. It's a collaboration between the School of Arts &

1 Sciences and the School of Engineering. The School of  
2 Engineering is the larger of the partners based on the needs  
3 and the activities there. But there is a mix of faculty and  
4 student activities from those communities, a smaller proportion  
5 from medicine, a few people from the veterinary school as  
6 regular users of the facility.

7 Q You mentioned graduate students. What are the  
8 opportunities for graduate students when it comes to the Singh  
9 Center?

10 A The graduate students, they carry out their research  
11 within the Singh Center using the advanced tools and the  
12 infrastructure there. There is also a lot of things like  
13 workshops and training opportunities that are run by  
14 organizations sometimes outside or inside, but that revolve  
15 around certain areas of interest, and techniques, and  
16 characterization, so it's sort a mixing place for doing  
17 different types of research. Some of the graduate students  
18 actually are, well, they're very talented so they actually get  
19 involved in the role of helping to oversee the operation of  
20 some of the tools and basically are involved in training other  
21 students. It's kind of a community, a self-supporting  
22 community in that sense in terms of passing on knowledge.

23 Q Do graduate students in more than one graduate group  
24 participate in the Singh Center?

25 A Yeah, so pretty much anything -- any area within

1 engineering and in the physical sciences is represented, the  
2 users both at the PI level but more importantly at the graduate  
3 students and post-docs and so on from all those groups.  
4 Actually, interestingly, all different parts of the university,  
5 too. The museum, the archeologists, people that are doing any  
6 type of characterization of artifacts and so on, they mix and  
7 mingle together, which is part of the richness of the  
8 experience.

9 Q I think all of us here know what you're talking about but  
10 just for perhaps future readers of this transcript when you say  
11 physical sciences to what are you referring?

12 A Oh, sorry. So the majority of those users would come from  
13 biology, physics, chemistry. And there are people that  
14 transcend that with psychology and sort of physical side  
15 understanding, sort of biological systems. They may take  
16 advantage of some of the tools and imaging techniques, and  
17 other things in that piece. But there is a majority of the  
18 components in that piece. We're unlikely to get mathematicians  
19 in that environment, although we have nice seating. I think we  
20 get students from all over whether they are working in the  
21 building or not.

22 Q LRSM, are you familiar with that acronym?

23 A Yes.

24 Q What's that?

25 A The Laboratory for Research on the Structure of Matter is



1 an interdisciplinary construct, an institute within the  
2 university that has a very long history. It goes back to the  
3 1960s. It celebrated recent anniversaries with years of  
4 activity. It was one of the first efforts within the United  
5 States to formalize this embracing of interdisciplinary  
6 research. The LRSM is a building on campus. It actually is  
7 this place where the majority of the material science faculty  
8 members sit, but also members of the physics department,  
9 chemical engineering have labs and students, and so on that  
10 work within that laboratory space. It's part of the idea of  
11 creating an environment where people wouldn't be limited by the  
12 physical boundaries, the walls of the building to get their  
13 work done and to do their studies. It's part of that long  
14 tradition. It sits at the institute so it actually reports  
15 through the vice provost of research, not to the deans of the  
16 individual schools. That's the difference between an institute  
17 in our structure centers, which are within a school, institutes  
18 which bridge between schools.

19 Q Are you familiar with something called the STC?

20 A STCs are programs that -- science and technology centers  
21 and they are funded for a period around a big question in  
22 science. Penn has been fortunate to recently receive funding  
23 for one of these multimillion dollar efforts that connects  
24 mechanobiology and ideas that take mechanical engineering, and  
25 biology, and medicine, and so on. That's a very exciting thing

1 that just launched recently. It has much of the character of  
2 the previous LRSM and having from its start this idea that it  
3 brings together students and faculty from very different areas  
4 but to work together.

5 Q When you mention bring together students from different  
6 areas that includes PhD students?

7 A Yes. Probably the majority are PhD students, some MV-PhD  
8 students from the medical school. There will also be some  
9 post-docs, although that's usually always a smaller percentage.

10 Q That's the case with the LRSM as well, this brings  
11 together PhD students from different graduate groups?

12 A Yeah. The structure there is it's organized into research  
13 teams. Even within those they emphasize drawing people from  
14 different departments, different schools, and then that  
15 provides a portion of funding that underwrites the cost of  
16 activities of the students that are associated with that  
17 research. So there will be sort of a cohort of students. They  
18 get to know each other. They meet regularly around different  
19 research themes, share results and so on. But they would be  
20 supported through a block grant from the National Science  
21 Foundation per the up for review, we're hopeful. Anyway, but  
22 that's the mechanism that allows the support for the research  
23 and study, ultimately the graduation of students.

24 Q I'm going to throw one more acronym at you, MRSEC, what is  
25 that?

1 A So the MRSEC is -- the M-R-S-E-C is the construct, it's  
2 actually the funding mechanism from the National Science  
3 Foundation that focuses on materials, research, engineering and  
4 science. So that's the division of NSF that focuses on  
5 materials related research. That is the grant that funds these  
6 NSF activities that is housed within the LRSM, the Laboratory  
7 for Research on the Structure of Matter. That's a  
8 multi-investigator, multiyear -- I think it's about a six-year  
9 term, and it brings together from all those different areas.  
10 So that's the ultimate program and the funding source for those  
11 activities.

12 Q Again I'm sorry to cover the same ground but brings  
13 together faculty members from different disciplines,  
14 engineering --

15 A Yes.

16 Q -- and SAS?

17 A Engineering, SAS, traditionally medicine. I believe there  
18 have also been participants from the veterinary school. At  
19 different times Wharton has been involved in a couple of the  
20 programs but only in a mode where their technology, their  
21 certain interest in terms of social impacts of science and  
22 technology has brought some of those people into the  
23 interaction.

24 Q PhD students from each of those disciplines as well or  
25 graduate groups as well?

1 A Right. And undergraduates and, you know, again a mix as  
2 the work dictates.

3 Q We really focused on the interactions or experience of  
4 graduate students doing their research between or among  
5 different graduate groups. In your experience at the  
6 university over the last 10 years are there other areas, other  
7 activities in which graduate students, PhD students interact  
8 outside of the labs?

9 A Oh, sure. Actually, one of the things that makes it a  
10 really I think a great place to carry out your studies is there  
11 are a lot of seminars, symposia, different kinds of activities  
12 which are open to the broader university community that allow  
13 students to come together from those different groups, so there  
14 are things that provide opportunities for them to learn about  
15 different areas. It's not part of the standard curriculum.  
16 It's not part of standard class activities. But actually there  
17 are three or four seminars every week that are potentially  
18 relevant. My students, my graduate students would attend at  
19 least three that would be of sufficient interest in their own  
20 personal development that they would be involved. There is  
21 also a great number of different sort of social and  
22 professional networking opportunities that occur, whether  
23 that's across the spectrum from barbecues like we had last week  
24 with SAS and SEAS students all getting together to celebrate  
25 the start of the summer, or the kinds of things that are more

1 professional development like ethics training, introduction to  
2 patent law, jobs outside of academia. There are a lot of these  
3 panels. Actually, I'll serve on one in a couple of weeks' time  
4 with that same goal. The students, they are learning to become  
5 scientists and so there are lots of opportunities outside the  
6 standard curriculum that provide that opportunity to mix. And  
7 some of that is across SAS and SEAS, but again also there are  
8 interesting opportunities in medical school. My students go to  
9 some of the events that are more technology and entrepreneurial  
10 focused at Wharton.

11 Q When you used the phrase my graduate students, to whom  
12 were you referring?

13 A The students that sit within my group that I serve as  
14 their PhD thesis advisor and that work on grants that I've  
15 helped to develop as a PI is one of the mechanisms of funding,  
16 some of the students are on fellowships and they have other  
17 mechanisms of support, too, so I would include those. I'm  
18 referring particularly to the students that for whom I'm an  
19 advisor, but I also have multiple students who are co-advised  
20 with faculty in other schools, too. I have students who I  
21 support jointly in their development with other faculty and  
22 that can be where the advisors come from two different schools.

23 Q This group that you've referred to as my graduate students  
24 that includes students in both the chemistry graduate group and  
25 the material science graduate groups?

1 A Right, I apologize. So my group is about 50/50. It  
2 fluctuates a little bit depending on needs, and trends, and  
3 interests of the students. I draw from both classes of  
4 students. Occasionally, I have students that start out in MSE,  
5 find out -- in material science, find out they like work that  
6 is closer to the synthetic side of chemistry. They switch to  
7 be considered chemistry students, but nothing really changes  
8 except their designation because they are working within my  
9 group. I have students who have done the same, started out  
10 several years in chemistry, decided they really wanted to get a  
11 job teaching in engineering, and it would be more advantageous  
12 to have the degree be in an engineering faculty. So as long as  
13 they meet all the requirements they can continue to do exactly  
14 what they were doing before but their degree will now be in the  
15 engineering.

16 Q Dr. Murray, in your view, who shares a more common  
17 experience during their PhD program of study, PhD students in  
18 chemistry and material science or PhD students in chemistry and  
19 the communications graduate group in Annenberg?

20 A Well, I think there is almost -- there is very little  
21 difference between the experience of students in chemistry and  
22 the physical sciences and physics and in the engineering  
23 school. There are dramatic differences between the other  
24 groups that you mentioned. Actually, I think one of the things  
25 we would like to find ways that they could mix and interact a

1 little bit more, but there is virtually no interaction between  
2 the students in the physical sciences part of SAS and the arts  
3 component of SAS. There are a few crossovers in the areas of  
4 biology and psychology, but to a large extent they are quite  
5 different worlds. Both very interesting and great  
6 opportunities, but it is quite a different experience I think  
7 in terms of expectations and how they carry out their studies.

8 Q You mentioned earlier that before coming to Penn you  
9 worked at IBM.

10 A Yes.

11 Q Did that work involve conducting laboratory research?

12 A Yes.

13 MS. ROSENBERGER: Objection. What's the relevance of what  
14 his work at IBM involved?

15 MR. FRYMAN: We'll get there. I'm going to tie this in.

16 HEARING OFFICER LEACH: I'm going to overrule that. I'd  
17 like to hear what he has to say.

18 THE WITNESS: Yes. I was a researcher and manager at IBM.  
19 I oversaw a group of professional scientists engaged in  
20 research, in the more basic research end of the company,  
21 usually about a dozen or so. I oversaw the nanoscience and  
22 technology portfolio as the strategist for IBM, which was a  
23 much larger group.

24 BY MR. FRYMAN:

25 Q How would you compare or contrast your interactions in

1 that laboratory environment at IBM with your interactions with  
2 those in the labs at Penn?

3 A It's a very different world. I think the key there is  
4 that those were professional scientists, technicians. They had  
5 very regular appraisal processes. We set plans that were  
6 developed for the work. Their pay depended on how they  
7 delivered on that plan. So it was a much more structured  
8 environment, a lot more time that was focused just on the  
9 deliverables of the specific technology development goals.

10 It still had opportunities for professional development  
11 and learning because that's what is required to carry out the  
12 work, but much of that was actually done by employees outside  
13 of the regular business responsibilities. We had a few  
14 graduate students that carried out work or portions of their  
15 thesis within my management area at IBM. That was quite common  
16 and actually a wonderful thing because they brought a different  
17 perspective. The students brought energy and sort of a  
18 curiosity that sort of helped to invigorate even the more jaded  
19 of the researchers in the industrial mode. But the  
20 environments are very different.

21 Actually, I guess that's why I made the change. There are  
22 opportunities in terms of the engagement, the breadth of  
23 activities, the fact that discovery in terms of learning and  
24 personal development are the focus of the university  
25 environment, whereas the other side in industry it's really



1 about what you can push forward in terms of what's valuable to  
2 the company, right? And so they are both rewarding  
3 environments, but they are very different environments.

4 Q On that point, Dr. Murray, wouldn't you -- we've had some  
5 testimony about the mission of the university. Wouldn't you  
6 agree with me that the mission of Penn is to make scientific  
7 discoveries, to advance science, build this knowledge?

8 A Building knowledge is definitely important, but actually I  
9 wouldn't agree. The majority -- the main role of the  
10 university, it's an institution of higher education. Its goal  
11 is to produce the talent. I mean the most important outcome of  
12 the activities of the university is the students and the skills  
13 that come from that. I think the students undervalue  
14 themselves some times. They don't realize they are the biggest  
15 outcome. There will be science and technology developments  
16 that come from a portion of the work that's done in the  
17 university, a very small portion, but the vast majority of the  
18 value that we have is actually embodied in the students,  
19 themselves, and what they contribute as they go on. That's  
20 Penn's legacy.

21 You remember Penn is remembered for who it produced much  
22 more than what it produced in terms of any particular science.  
23 So I think that's also one of the big differences is that in  
24 industry it's not focused on the development of the individual  
25 or employee maybe even as much as we should I think in that

1 time. It's very different in the university. The students are  
2 the most valuable part and the science and engaging in the  
3 science is part of how best to prepare them for their futures.

4 Q How do you further that goal or mission in your own day to  
5 day work or in your life?

6 A Well, we try. I mean number one is you support them in  
7 terms of what they need to learn in the fundamentals, but then  
8 you are working side by side with them or meeting with them to  
9 help them to get their experience in solving scientific  
10 problems by working in the lab, working on real world problems.  
11 We also have an environment where we really encourage those  
12 students to go out, and take their work to other places, and be  
13 ambassadors, so they're going to national labs, doing  
14 international experiences where they carry out their research.  
15 So the idea is to try to give them the broadest possible view  
16 of the elements that are involved in a professional life in  
17 science. But they are just learning how to do that. I mean  
18 our major responsibility is to support them so that they can  
19 learn and continually do better work.

20 Q Thank you, Dr. Murray. That's all the questions I have.  
21 Ms. Rosenberger may have some questions for you.

22 A Sure.

23 CROSS-EXAMINATION

24 BY MS. ROSENBERGER:

25 Q Hi.

1 A Hi.

2 Q My name is Amy Rosenberger and I'm one of the lawyers for  
3 the Union in this case.

4 A Okay.

5 Q And, yeah, I do have some questions for you. On that last  
6 point, you talked about working side by side with your  
7 students.

8 A Yes.

9 Q It sounds like from what you're describing they are  
10 learning, to you use your terminology, to do this work by doing  
11 it.

12 A I mean there is a combination. They do both classwork and  
13 also study to learn the concepts. I mean I came here from a  
14 journal club which was students presenting papers, critiquing  
15 them, and so on, that was completely unrelated to their precise  
16 goals in the lab, but it makes them better at critical  
17 thinking.

18 Q But in terms of the work in the lab where you're working  
19 side by side with them --

20 A I mean I don't work in the lab as much as I used to.  
21 Actually, when I'm called in to work side by side that probably  
22 means something went wrong and we have to fix something  
23 probably. I mean that's the key is that you want to be --  
24 yeah, so my office actually is in the lab suite. It's actually  
25 sitting next to the students. And so that gives me an

1 opportunity to walk through and just find out what's on that  
2 table and what they're interested in.

3 Q But they are actually running experiments that are part of  
4 the overarching classroom that's being funded by whatever grant  
5 is funding them, yes?

6 A Some of them. Some are funded by fellowships. Some are  
7 funded by different programs. It depends. Most students are  
8 actually contributing to multiple projects because when you do  
9 a PhD you have a thesis that sort of provides an intellectual  
10 center for your activities. And then the key is how do you get  
11 the resources and other things to carry out that work.

12 Usually, it takes a combination of grants in order for the  
13 students to get enough work done to learn and develop in the  
14 way that they need to prevent their final thesis. So, most  
15 students are funded by different grants at different times and  
16 often by different grants even at the same point in time.

17 Q When you referred to the group that you called my graduate  
18 students, how many --

19 A Yes. It's a family.

20 Q Yes. How many graduate students are in that group?

21 A It fluctuates. We just had four graduate last year so now  
22 I'm somewhere around maybe six or seven students. One has just  
23 graduated in May. He's still around. So it depends; there are  
24 a lot of people that are kind of in transition. But the  
25 numbers fluctuate high as maybe around a dozen or so. With

1 funding the way it is currently, smaller is probably better in  
2 terms of ability. I think in terms of numbers that varies a  
3 lot from department to department and from different --

4 Q My question was about your group of graduate students.

5 A My group, sure, yeah.

6 Q So what I gather what you're saying is anywhere from maybe  
7 six to a dozen.

8 A Yeah, and that's PhD students. Probably there would be  
9 about six masters, five or six master students. I try not to  
10 go above that. Undergrads, right now there are four, five;  
11 three post-docs -- five post-docs. Again, some are kind of on  
12 their transition to new jobs. So that creates an eco-system in  
13 terms of the number of people interacting.

14 Q Are the master students in your lab funded?

15 A The master students are funded -- are self-funded in that  
16 they pay for their tuition. They carry out research for which  
17 they receive a grade or get their thesis. But they are not  
18 independently paid for their research time. Some do conduct  
19 work as TAs and are paid. And there are certain programs where  
20 there are allocations to support master students, though that's  
21 on a case by case basis. The majority of the master students  
22 in my program are there as part of their training and their  
23 course requirement. They actually receive a grade for the work  
24 that they do.

25 Q And they don't get a stipend?

1 A They don't get a stipend from the university.

2 Q Or tuition.

3 A No, no.

4 Q Or fees. Do they get university paid student health  
5 insurance?

6 A In the master's program I don't -- for the undergraduates  
7 -- the terminal master's program is equivalent to the  
8 experience of most of the undergraduates in terms of the  
9 expectations. There are students who are in a masters track  
10 and transitioning to the PhD program. So again it depends on  
11 the department. Students, until they pass certain  
12 examinations, in their advancement in the graduate program, if  
13 they don't pass that they might then transition into a master's  
14 program. And at that point they will have received pay and  
15 support and so on. There isn't a one size fits all answer.

16 Q Okay. So any of the graduate students in your lab say  
17 have been admitted to a graduate group, right?

18 A That's correct. All the PhD students have been admitted  
19 to a graduate group.

20 Q It sounds like in your lab you had said they were about  
21 50/50 so about half of the PhD students are admitted to the  
22 chemistry graduate group, right?

23 A Roughly. Sometimes more. Usually there are a couple more  
24 chemistry than material science generally because it's just a  
25 bigger class. Chemistry is about twice the size of -- the

1 department, it's a little over twice the size of material  
2 science.

3 Q The total number of students in the chemistry graduate  
4 group.

5 A Actually, then it would be even larger. In terms of  
6 faculty and some, it's just the issue.

7 Q Then the other whatever, whether it's 50/50 or 45/55,  
8 whatever it is, the other set of your graduate students are  
9 admitted to the material science graduate group and  
10 engineering.

11 A That's correct.

12 Q There are criteria for admission to each of those graduate  
13 groups, isn't that right?

14 A That's correct.

15 Q And there is supervision of -- let me step back a second.  
16 There are requirements -- there are degree requirements for  
17 each of those graduate groups that are determined by the  
18 graduate group, right?

19 A That is correct, although there are differences even  
20 within chemistry. For example, physical chemists have a  
21 different set of requirements than the organic chemist and  
22 biochemist. Anyway, depending on the track that the student is  
23 in, there will be certain expectations in the courses that they  
24 cover and their performance.

25 Q In that circumstance, for those different tracks in

1 chemistry, those requirements for the various tracks in  
2 chemistry are set by the graduate group for chemistry.

3 A Yes. They are set by a subgroup and need to be approved  
4 by the graduate group.

5 Q Similarly, whatever the expectations are for the  
6 engineering students in our lab are set by the graduate group  
7 in material science and engineering.

8 A Yes, that is correct.

9 Q If there is an issue, I mean hopefully you have not had  
10 this but if there were an issue with a student in your lab who  
11 was struggling and not performing well and that student were  
12 someone who was admitted to the chemistry graduate group, you  
13 would consult folks in the chemistry graduate -- perhaps the  
14 graduate chair in the chemistry graduate group, correct?

15 A Yes. I mean there are a number of mechanisms for support  
16 within the university in that circumstance. It depends on  
17 where the source of the difficulties lie, if it's in the  
18 technical work or other personal issues. Unfortunately, I  
19 think virtually every advisor has had the circumstance where  
20 there are students that run into trouble. The nice part is  
21 usually that's because they're in the wrong role and they end  
22 up doing very well in another program. Usually, it's a good  
23 outcome, but it's not as rare as we would hope.

24 Q Similarly, if you had -- if an engineering student in your  
25 graduate -- who was one of your graduate students was



1 struggling and having an issue, it would be to the material  
2 science graduate group that you would go to find whether it  
3 needs to be addressed at the chair or to find support or what  
4 have you for that student.

5 A That's true. And the same even within chemistry. If it  
6 was a chemistry student then I would interact first if they  
7 were an inorganic student with the other faculty in the  
8 inorganic subdivision of chemistry. It does move up further.  
9 I mean ultimately there are circumstances that are dealt with  
10 at a level above the schools depending on what issues arise.  
11 We hope these are very few but if there are issues of integrity  
12 or other things that come into play, those are addressed at a  
13 separate level than beyond the graduate groups discussions.

14 Q Am I correct in understanding that there would be issues  
15 that would -- and maybe some issues go up the chain, but some  
16 issues that would get addressed at the graduate group level,  
17 some at the dean's school level, some at the provost or  
18 university level.

19 A I think rarely with issues relating to the students rise  
20 to that level, but fortunately there are a lot of support  
21 mechanisms, health related, activities, and so on, those  
22 mechanisms kick in at various different places in the  
23 organization. It's an important issue and we want to do that  
24 better.

25 Q Do you know how many total faculty there are in the

1 university?

2 A Oh, that's a really good question. I can tell you in  
3 engineering because it's a small number, but I don't actually  
4 know the total number within the entire University of  
5 Pennsylvania. There's standing faculty and then there is all  
6 these other --

7 Q That's what I'm talking about.

8 A Yeah, I don't know what the number is. I apologize.

9 Q But in any event, the 21 who are the PIK professors, first  
10 of all they are all standing faculty, right?

11 A They are all standing faculty, tenured in two or more  
12 schools. And there are several other programs that have the  
13 same character of having people tenured in more than one  
14 school. There is a presidential initiative that looks at  
15 issues of diversity, has that role. There is a program that is  
16 targeted at younger, rising faculty to provide them with those  
17 opportunities. So PIK is just one example.

18 Q As a PIK professor, you are -- you don't have a separate  
19 dean for PIC professors, right?

20 A No.

21 Q You still report to your two deans in your two schools,  
22 right?

23 A Right. And do whatever we can for service for the  
24 university as a whole, too. But, yeah, there is a shared  
25 reporting structure. Sometimes that means twice the paperwork

1 unfortunately and twice the committees and twice -- anyway,  
2 that's part of the modern -- the modern learning environment  
3 has to be agnostic about those boundaries and so that's the  
4 price that we pay, that if you want to get things done you want  
5 to be able to access and support talent without regard to the  
6 historic silos, you know, between different disciplines.

7 Q But you don't do it without regard to the historic silos.  
8 You report to two deans, don't you?

9 A I don't really -- I report to someone?

10 Q You don't report to anyone?

11 A As in academia?

12 Q Yeah.

13 A I don't even know what that means to report to. I know  
14 what it meant in industry, believe me. I had a manager. I was  
15 a manager and I had a manager. I mean certainly not --

16 Q So you're not evaluated at all by your department chairs?

17 A Input goes to my department chair and they have a  
18 discussion with the dean and the committee to decide whether or  
19 not I am on a track that should be encouraged. And that has to  
20 do with setting pay levels. But all the other resources that  
21 go into what I do are not directed by the deans. It's based on  
22 what we raise in terms of research support and interaction with  
23 other structures. Sorry for the -- it's the contrast between  
24 when you said I report to somebody. I know what that was like  
25 and I don't really have that relationship with -- it's the

1 difference between academia and industry.

2 Q Certainly. And academia has -- I mean we certainly  
3 understand the notion of the role of faculty in institutional  
4 decision-making is very different than what you have as the  
5 role in a hierarchy. And I wasn't meaning to suggest --

6 A No, no, I understand.

7 Q -- that it's the same role as what you are talking about  
8 in industry and I get that your background might --

9 A Right. It's all by committee here, which will drive you  
10 nuts. There is no boss really. And when it comes down to it,  
11 I mean there is no -- there are very few mechanisms for  
12 exertion of those decisions in the academic structure. For  
13 better or worse, that is the way that -- even within  
14 departments the chair and the other structures, those are not  
15 strong positions. They have to have the consensus of a  
16 majority of the faculty in order to operate effectively, which  
17 is quite different than what is entrusted to a manager in a  
18 private company generally.

19 Q Did you come to Penn - were your appointments to the two  
20 departments that you were appointed to as full professor with  
21 tenure?

22 A Yes.

23 Q So you've never had to go through the promotion process or  
24 anything?

25 A I have -- I do 20 or more tenure cases a year where I am

1 the evaluator.

2 Q Right. I'm not asking about that.

3 A I mean so unfortunately I know that process very well in  
4 terms of the procedures and what it takes to get tenure. But  
5 in my particular case, I transitioned at a point in my career  
6 where I went through the tenure process once, with my record  
7 and input from the scientific community being provided to the  
8 schools, and then they voted on that basis.

9 Q The schools voted on that.

10 A Each department did, and then the schools did, and then  
11 the president and provost had to sign off, yeah.

12 Q I want to ask you a little bit about these groups with  
13 acronyms that you testified about.

14 A Yeah, sure.

15 Q You talked about LRSM. That has graduate students from  
16 different graduate groups it, right?

17 A Yes. And that changes throughout time as the projects  
18 that make up that program's activities change. Usually, it's  
19 in groupings of sort of five to six years and then there will  
20 be some change-up in terms of the people that are contributing  
21 and so on. But it's always a mix of -- I mean the largest  
22 contributing schools are always SEAS and SAS. The number of  
23 participants from the medical school is always smaller  
24 historically.

25 Q In the Singh Center, the graduate students who work there

1 are from different graduate groups, right?

2 A Yes, both departments -- it depends on which activities in  
3 the center. Some have a majority of SAS users, but overall the  
4 total usage level is higher among the engineering school than  
5 the School of Arts & Sciences. And within Arts and Sciences,  
6 the dominant departments that have activities there are  
7 chemistry and physics. And I should just add there are private  
8 labs from both schools also in that building as well, so  
9 laboratories overseen by faculty members in physics and also in  
10 disciplines in engineering. Part of the building is shared  
11 facilities and one wing of it is the -- when you say private  
12 labs, it is the individual groups' laboratories for research  
13 that requires the environment, the special environment that the  
14 new building offered.

15 Q When you say individual groups, you mean individual  
16 graduate groups?

17 A No, not graduate groups but PIs. So PIs have their labs  
18 in that portion and they come from the different schools.

19 Q Like we've heard from George McKenna (ph.), another  
20 chemistry professor, earlier in this case that has the Baumgart  
21 Group. You have the Murray group, right? Is that the group  
22 you're talking -- the kind -- the usage of the term group that  
23 you're talking about?

24 A Yes, that's right. I was referring to my group. But as I  
25 mentioned, since I jointly advise a number of students, the

1 boundaries between that are a little blurry in terms of since  
2 many students, and this is increasingly common that students  
3 are actually not advised by a single faculty member but are  
4 co-advised by more than one faculty member.

5 Q Getting back to your graduate students and particularly  
6 the PhDs who are funded, their funding package is set by their  
7 respective graduate group, right?

8 A The levels in terms of stipend and the tuition is set by  
9 the school. The funding levels are set actually in comparison  
10 so there's always meetings, they get the numbers from peer  
11 institutions. It's a competitive marketplace so usually moving  
12 a little faster than the normal rate of inflation in terms of  
13 increases in that piece. But that's usually annually it is  
14 reassessed as to whether there should be another increase in  
15 the support.

16 Q But it is reassessed by each graduate group for the  
17 students in their group, right?

18 A It's reassessed by each graduate group in terms of what  
19 are the departmental expectations. There are some fellowships  
20 and other programs that provide additional higher levels of  
21 pay. There are differences between research assistantships and  
22 teaching assistantships. Some of the students are engaged in  
23 extra teaching responsibilities that are also compensated. So  
24 what their total compensation is, is a little bit more  
25 complicated.

1 Q So when you say extra teaching assistantships, you mean  
2 teaching assistantships outside of those that may be required  
3 as service requirements in a program?

4 A Correct. So there are other things. Once they have  
5 satisfied those requirements there are other opportunities that  
6 come up where actually some of my students work in a role that  
7 is more focused on outreach so the teaching is actually outside  
8 the university designing programs that are intended for high  
9 school students. That's actually something that is another  
10 important part of the university. Outreach is a big part of  
11 what we do. It's not focused on the deliverables of the grant  
12 but it is part of the professional and social impact of the  
13 university.

14 Q When someone is teaching outside the university in the way  
15 that you described are they being paid as a teaching assistant  
16 by the university?

17 A There are programs that the university has support for,  
18 usually federal grants, and that can provide support for these  
19 types of outreach efforts. I think any kind of compensation  
20 for those is actually pretty modest, but still it's part of the  
21 effort of the university to have an impact that reaches beyond  
22 its borders. There is work in the Philadelphia high schools  
23 and other areas that are staffed by paid people of the  
24 university that help to oversee groups of graduate students. A  
25 few of those graduate students have supervisory roles in that



1 effort.

2 Q That was a very long answer to what I thought was a short  
3 question.

4 A Oh, sorry.

5 Q I want to make sure I actually heard the answer to my  
6 question which is am I right that you're saying the graduate  
7 student who may be doing teaching outside of the university,  
8 out teaching as --

9 A No --

10 Q Let me finish my question.

11 A Yeah, sure.

12 Q Does teaching in an outside -- in a Philadelphia school,  
13 to use your example, if they are being paid -- they're not  
14 being paid by the Philadelphia School District. They are being  
15 paid by Penn and there may be some funding source for that, but  
16 they are getting paid by Penn.

17 A The majority of that is volunteer. There are a few that  
18 serve as coordinators through those efforts and I believe they  
19 are credited for that activity. I have had students that serve  
20 -- that actually do teach and tutor or serve as house monitors  
21 and in other roles in the university and for that they are  
22 compensated. That is separate from their work requirements.  
23 They do need to get approval to do that because sometimes they  
24 have to carry out those activities during the normal workday as  
25 required so that has to fit in with their expectations in terms

1 of classwork and other things. But people work on campus in  
2 roles that aren't related to the research. The graduate  
3 students do sometimes, too.

4 Q You talked about when you teach, it sounds like you teach  
5 maybe a course each semester.

6 A Generally.

7 Q When you have a teaching assistant, what kinds of roles do  
8 they serve in connection with the class that you're teaching?

9 A They are resource. Usually, the TA is someone who has  
10 taken the class before so they know the general area of  
11 interest. They often help with grading. Occasionally, they  
12 will run extra tutorial sessions or different types of  
13 training. It depends on the expectations. So when I teach  
14 freshman chemistry then the TA there has a pretty big job  
15 because those are pretty needy students in terms of just  
16 needing support. They're adjusting to lots of changes in terms  
17 of expectations so then there is a more regular schedule of  
18 tutorials and recitations as we call them, and so those TAs get  
19 experience in both presenting material as well as evaluating  
20 material, and then helping to meet with the students. That  
21 supplements our office hours and what we can do outside the  
22 class to help.

23 Q You say our office hours and what we can do, who is our?

24 A In that case the faculty. But I would also note that some  
25 classes are -- so in particular one of the classes that I teach

1 is an honors chemistry section and we actually try to combine  
2 that teaching between basic science concepts and applied  
3 science concepts, so we actually match up a faculty member with  
4 a theorist and myself, who is an experimentalist, and so we  
5 teach it actually alternating giving the background, so it's a  
6 team effort. And the same in -- there are a number of courses  
7 that are jointly taught between SAS and SEAS, so chemistry for  
8 the engineers is taught with one professor from chemistry and  
9 one professor from engineering, and they teach the same class  
10 alternating sections so that the students get exposure to both.

11 Q I think -- let me just check.

12 A Sure.

13 Q You said you had some graduate -- when you worked at  
14 IBM --

15 A Yes.

16 Q -- there were some graduate students working on their  
17 thesis --

18 A Yes.

19 Q -- at IBM. Were they paid by IBM?

20 A It's a mix. There are students -- actually, quite a  
21 number were paid for a portion of their time. Usually, that  
22 was in the summertime. So they would come as summer interns  
23 and they would work on projects that were related to their  
24 thesis topic and then they would return to their home  
25 laboratories. There were a few people that actually became so

1 involved in the projects that ultimately they would do the  
2 majority of their thesis work at IBM. That wasn't the case in  
3 my own department, but it was something that actually was very  
4 valuable to the company just having connections to the talent  
5 pipeline. A lot of the people that were hired into IBM were  
6 actually people who had exposure to the company through one of  
7 these internship opportunities early on. But that's still a  
8 small number usually. And as I say, it was enjoyable and I  
9 think it was a very special experience because having students  
10 in the mix with professional scientists kind of helps to -- we  
11 learn something from them and they learn a lot of research. I  
12 send my students actually out quite often for those types of  
13 internships both nationally and internationally. This summer I  
14 have a graduate student who is at one of the national labs. I  
15 have two that are at facilities in Europe. It's part of their  
16 learning experience.

17 Q That's all I have for you. Thanks.

18 HEARING OFFICER LEACH: Does the Employer have anything?

19 MR. FRYMAN: I do not, other than I don't know that I  
20 moved 47.

21 HEARING OFFICER LEACH: Any objection to Employer 47?

22 MS. ROSENBERGER: No.

23 HEARING OFFICER LEACH: Okay. Employer 47 is received.

24 (Employer E-47 received.)

25 HEARING OFFICER LEACH: I have some questions.

1 THE WITNESS: Certainly.

2 HEARING OFFICER LEACH: When you talked about your lab, I  
3 have in my notes the majority of the lab is in the chemistry  
4 building. Where is the other lab?

5 THE WITNESS: We have lab space in the laboratory, the  
6 LRSM, the Laboratory for Research and Structural Matter, and  
7 that is primarily characterization space, X-ray analysis space.  
8 We also have space that is shared instrumental space in the  
9 Moore Building, which is electrical engineering. And we share  
10 facilities in the Singh Center.

11 HEARING OFFICER LEACH: Where is the LRSM? Where is that  
12 located?

13 THE WITNESS: It is located at the corner of Walnut Street  
14 and 33rd Street and it is immediately adjacent to the Singh  
15 Center for Nanotechnology.

16 HEARING OFFICER LEACH: So that's its own building?

17 THE WITNESS: It's its own building. It sits across the  
18 street from physics. Penn is very integrated. The Arts and  
19 Sciences and Engineering are all mixed up; actually often share  
20 the same buildings. When I say chemistry, I'm being a little  
21 territorial. Actually, chemical engineering also resides in  
22 the same space, and earth and environment -- sorry. So,  
23 anyway, at Penn, the buildings are mixed by their nature with  
24 faculty from SEAS and SAS cohabitating those spaces.

25 HEARING OFFICER LEACH: You referred a lot to what you say

1 is my group.

2 THE WITNESS: Yes.

3 HEARING OFFICER LEACH: How will students come to your  
4 group?

5 THE WITNESS: Students are admitted to the university.  
6 They arrive in August, get oriented. They start getting  
7 classes, and then they start interviewing faculty members and  
8 meeting with the current group members in different area. And  
9 then there is a matching process that goes on in the fall.  
10 Students submit their top three choices of who they would like  
11 to work for. Faculty members submit their top three or so  
12 choices of who they would hope would work for their group. And  
13 then they try to get the best match between those.

14 HEARING OFFICER LEACH: Okay.

15 THE WITNESS: And the process is roughly the same in  
16 chemistry and in material science. Some areas -- some other  
17 departments do direct admission where the students know who  
18 they're going to work for before they come in. That's the  
19 decision of the graduate group as to how they want to handle  
20 that matching process.

21 HEARING OFFICER LEACH: I know you mentioned that you have  
22 teaching assistants. Do you have research assistants?

23 THE WITNESS: Yes. I guess the majority of the PhD  
24 students carrying out their thesis work would be considered RAs  
25 or research assistants, which is the category for which they

1 have stipend support while they are doing their studies. And a  
2 smaller number may be engaged more in teaching activities and  
3 then they would be designated as TAs. That means that they are  
4 carrying out activities in the class and also in supporting the  
5 learning of the students that they are working with. That work  
6 is outside the laboratory.

7 HEARING OFFICER LEACH: When you have research assistants,  
8 are they -- you mentioned that they have stipend support for  
9 that.

10 THE WITNESS: Yes.

11 HEARING OFFICER LEACH: Is that something that they do the  
12 entire time they are getting their PhD or is that based on a  
13 semester basis? How would you explain when a PhD student is  
14 doing a research assistantship?

15 THE WITNESS: So that designation is actually handled at  
16 the level of the -- so the business office will ask each  
17 faculty member what the mechanisms are that they are going to  
18 use to support the tuition and the stipend for the students. A  
19 number of the students will have opportunities to participate  
20 in teaching if they are interested in that. That's a benefit  
21 if that's the direction that they want to go on. But it's  
22 determined based on sort of how much need there is for teaching  
23 support, the size of the class and other things in the  
24 department. The majority of the activities though are  
25 generally in the category of research assistants rather than in

1 teaching assistants. But any one student might switch those  
2 roles. If they are five years getting their PhD, they might be  
3 a TA for three or four semesters out of that time and an RA for  
4 the remainder, it depends on the circumstances.

5 HEARING OFFICER LEACH: So they are either a TA or an RA  
6 to receive their funding?

7 THE WITNESS: They are a TA or an RA to support themselves  
8 while they are learning, that's right. The stipend is to  
9 provide living costs and to allow them to -- it's one of the  
10 nice things about science-based studies is that there is a  
11 mechanism to help them to be supported while they advance their  
12 degrees, which is not the case -- I mean in certain areas, we  
13 mentioned differences and like between Humanities and Arts and  
14 Sciences. There are much bigger burdens on some others in  
15 terms of generating the funds to carry out the work that you  
16 do.

17 HEARING OFFICER LEACH: When they are acting as an RA,  
18 what are they doing?

19 THE WITNESS: They'll be taking classes depending on what  
20 other things they need to do or want to do. They'll be  
21 involved in seminars and department life, if you will. But the  
22 majority of the time would be in the lab conducting  
23 experiments, evaluating work, reading papers, doing all the  
24 things that are needed to sort of advance their scientific  
25 goals. And usually that is not a single role. It's usually



1 contributing to several different areas of activity within one  
2 theme that will ultimately constitute their PhD dissertation.

3 HEARING OFFICER LEACH: When they're doing experiments,  
4 are they doing experiments based on their own research leading  
5 to their PhD or are they working with a professor?

6 THE WITNESS: It's a mix. I mean actually so they're  
7 almost always working with a professor largely in the sense  
8 that there has to be some structure to have enough resources to  
9 do the kind of physical experiments that we're talking about.  
10 But the experiments that they do and actually the really good  
11 students, they tend to generate a lot of those opportunities,  
12 themselves. Often grants are planned in terms of possible  
13 outcomes, but they divert quickly if you find something that is  
14 more exciting and better. So students often, they redefine  
15 what the goals are by the discoveries that they make as they go  
16 along.

17 HEARING OFFICER LEACH: I'm still not clear, though, when  
18 they are doing these experiments, are they doing the experiment  
19 based on their own work that's leading to their PhD or are they  
20 doing something for a professor, or would you say it's both?

21 THE WITNESS: Actually, it's more that they are doing work  
22 -- they set the experiments and do the planning. I don't have  
23 time to do that level of micromanagement. So what we do is we  
24 coordinate so that we have the long-term goals of what's needed  
25 within the project and then the students, we teach them -- I

1 mean in the first year you have to give them closer direction,  
2 but generally the good students are actually, they're designing  
3 the experiments and developing targets. Often the really good  
4 stuff they come back and tell me what they found and we decide  
5 whether we should continue in that line or stay with an  
6 existing track of research.

7 HEARING OFFICER LEACH: Is that based on what you're  
8 telling them to do? Like what they are doing, is it based on  
9 what a professor is telling them to do or their own work based  
10 on whatever their PhD work is?

11 THE WITNESS: The two -- I mean if -- what you try to do  
12 as best as possible is to find a strong overlap between the  
13 center of activity for a student's thesis and what funding  
14 sources you can draw in to allow them to be able to have the  
15 time and the resources to explore that work. The grant  
16 agencies, depending on their goals, some will be more oriented  
17 towards development of the students and the talent. Some will  
18 be more oriented towards certain advances in the science. That  
19 will determine just how much we can explore around the  
20 periphery of a particular project. But really good students,  
21 they set much more of the direction and the research than the  
22 individual investigators do. And if they are going to go on in  
23 a career in science, that's what you want. Those are the ones  
24 who are successful. If they are people that have to be told  
25 what to do every day, they are not going to be successful

1 principal investigators. They're going to be technicians.

2 HEARING OFFICER LEACH: Okay. Still on the RA question,  
3 you said that they are evaluating work. What work are they  
4 evaluating?

5 THE WITNESS: They're evaluating the work of other groups  
6 that are competing in this area. You critically read and  
7 evaluate work that comes out in the literature, what you learn  
8 through attending symposia or other types of professional  
9 events. And actually we use a process of internal evaluation,  
10 so in my own group students who are writing papers are asked to  
11 share it with others in the group to have it reviewed and  
12 critiqued internally to make sure that it is as high quality as  
13 possible. So they are evaluating each other's contributions  
14 and helping each other. That's the same thing whether they are  
15 chemistry students or engineering students. Actually, often  
16 it's good to have somebody of a different discipline read the  
17 paper and ask questions in order to improve the clarity of the  
18 message.

19 HEARING OFFICER LEACH: You said evaluating work of other  
20 groups competing in this area. Do you mean from outside of  
21 UPenn?

22 THE WITNESS: Oh, yes. We try to avoid internal  
23 competition. It's a tough enough place. So, yeah, any of the  
24 scientific questions that we would be addressing are generally  
25 of sufficient importance that there are multiple labs in the

1 United States or around the world that are trying to make  
2 advances in the same area. And we collaborate with some of  
3 those groups, but in other cases we try to understand then to  
4 build on their work. I used the term competition because it is  
5 a competition sometimes to make the key contributions in that  
6 area.

7 HEARING OFFICER LEACH: I think you said that when the RAs  
8 are doing this work, this evaluating work, did you say that  
9 that's like interdisciplinary so that could be something within  
10 SAS and an engineering student doing that together?

11 THE WITNESS: Oh, certainly, certainly. Actually, I  
12 usually try to get students with not only different training  
13 backgrounds, but also different -- we have students from all  
14 over the world. It's very helpful to have readers of the  
15 papers that actually come from different personal backgrounds  
16 because they ask different questions. It can be also helpful  
17 in developing the communications skills. So there's  
18 communications skills that come from those different  
19 international backgrounds, but actually one of the most  
20 valuable things is when you have somebody in chemistry that can  
21 understand and speak in the language and terms of physics and  
22 engineering. They are going to get a much better job. They're  
23 going to have much clearer opportunities than people who are  
24 limited by their experience. We stress that actually.

25 HEARING OFFICER LEACH: You mentioned that research

1 assistants are reading papers. Is that the same as evaluating  
2 work? Is that what you meant or something different?

3 THE WITNESS: Well, no. There are two things. There is  
4 reading and evaluating the papers in the sense of understanding  
5 what's relevant for your immediate project goals and your own  
6 thesis. But students are also reading papers just to educate  
7 themselves about the general field. And so we have meetings  
8 that actually do that in a more formal way where students  
9 present a paper, they distribute it, present it, and then they  
10 discuss it and critique it as a group, and kind of get into the  
11 mode of being -- when I say evaluate, it's multiple stages.  
12 Some of it is for personal education. Some of it is to provide  
13 benefit and feedback to the original author of that work and  
14 help them do a better job with their own contributions. And  
15 almost all the papers that we write actually have multiple  
16 authors from multiple disciplines, so virtually all the  
17 co-authorship mixes those anyway because that's the kind of  
18 combination of skills that you need to do the work.

19 HEARING OFFICER LEACH: When they are reading papers,  
20 whose papers are they reading?

21 THE WITNESS: It could be from groups from anywhere in the  
22 world. Basically, we use a lot of electronic sources. But  
23 there are key journals that are important in each of the area  
24 that the students work. One of the things that we try to  
25 emphasis is to make sure that the students are reading and

1 discussing papers that are outside their traditional  
2 discipline. So the chemists read and discuss and understand  
3 papers in physics engineering, electrical engineering, and so  
4 on, and engineers need to learn and understanding organic  
5 chemistry, polymers, and so on. So it's part of the broadening  
6 experience. It's not related to the exact project that they  
7 are carrying out, but it makes them better scientists and in  
8 the long run that makes them more productive, more creative,  
9 and it's a win overall in terms of what comes out of the lab  
10 over time. And the number one thing that comes out is the  
11 students, right?

12 HEARING OFFICER LEACH: Okay. So what you've described in  
13 the several questions that I just asked you is really just a  
14 summary of what a research assistant is doing in your lab.

15 THE WITNESS: Yeah.

16 HEARING OFFICER LEACH: Okay. Who oversees the research  
17 assistant's work?

18 THE WITNESS: I do, in combination with -- since things  
19 are done in teams, so sometimes there may be a more senior  
20 scientist, a post-doctoral researcher, or a visiting scientist  
21 that is in the lab that may help in that role. But I have that  
22 primary responsibility, along with whoever constitutes the  
23 thesis committee for that student. And depending on the  
24 department, depending on the graduate group, the faculty  
25 advisor may be a part of that committee or they might not be.

1 It's also determined by the graduate group. But the primary  
2 role of the thesis advisor -- sorry, the thesis committee is to  
3 be the advocates for the student.

4 HEARING OFFICER LEACH: When you have teaching assistants,  
5 are they evaluated?

6 THE WITNESS: They are. There are certain rewards and  
7 recognitions that are given to the best of the student  
8 teachers. I think making a positive impact in that can be  
9 helpful in terms of people's career possibilities if their  
10 hopes are to go on in teaching. But there's no, you know, good  
11 teachers aren't paid any more than really bad teachers.  
12 There's no discrimination based on the quality of the work.  
13 That's the way the system works.

14 HEARING OFFICER LEACH: Is there some sort of formal  
15 evaluation system that you use?

16 THE WITNESS: There is. And there is evaluation by the  
17 students which is really important. That's also very important  
18 for the faculty, too. We take those surveys and the evaluation  
19 that comes back from the students as really important in terms  
20 of how we assess the teaching performance. And in both  
21 Engineering and in Arts and Sciences, the students are graded  
22 for their teaching performance as well since teaching is a part  
23 of their curricular programs. That grade appears as a  
24 motivation but not -- it doesn't actually impact their grade  
25 point average, so it isn't factored in, in terms of numerical

1 evaluation of their class performance.

2 HEARING OFFICER LEACH: Does it affect their stipend or  
3 funding?

4 THE WITNESS: No, it doesn't. But it can affect the  
5 strength of their recommendations and it provides more insight  
6 as to where there might be issues that students need to work on  
7 in terms of their communication skills and other aspects of  
8 professional development.

9 HEARING OFFICER LEACH: You said it affects their  
10 recommendations. For what?

11 THE WITNESS: Well, you would hope that if someone is  
12 going on in a track to teaching that they will have done well  
13 in their experience in teaching.

14 HEARING OFFICER LEACH: So a recommendation that they may  
15 receive to move forward in that career?

16 THE WITNESS: Right, right.

17 HEARING OFFICER LEACH: Okay. Now you said there is  
18 evaluation by students. What other type of evaluation do TAs  
19 or would you perform on a TA?

20 THE WITNESS: There is feedback from the faculty that  
21 actually taught the class and there's feedback from the  
22 students who were in the class. Occasionally, there are  
23 faculty members that will sit in on each other's lectures to  
24 evaluate both the professor's performance and the TA's  
25 performance. But all of that comes back to the department in



1 terms of recommendations on how to do things better. It's just  
2 part of our process to try to provide a better quality of  
3 education.

4 HEARING OFFICER LEACH: And the feedback that is given to  
5 a TA, does that have any effect on their stipend or funding?

6 THE WITNESS: No, it does not.

7 HEARING OFFICER LEACH: What's it used for?

8 THE WITNESS: Well, I think one of the parts is it would  
9 have an impact on whether that particular TA was offered an  
10 opportunity to teach again. There are circumstances in which  
11 the performance was at a level that we were not comfortable  
12 with so students were not offered or asked for teaching  
13 assignments the remainder of their career, but you hope that's  
14 a rare circumstance. So it's used as a way of understanding  
15 the quality and the aptitude of the teaching assistant and  
16 whether that role is appropriate for them.

17 HEARING OFFICER LEACH: I just want to be clear. You're  
18 saying that there have been times when a TA was evaluated and  
19 they were not asked to teach again?

20 THE WITNESS: Correct.

21 HEARING OFFICER LEACH: In that circumstance, what do they  
22 do if they are not doing a TA?

23 THE WITNESS: Then they would be a research assistant.  
24 They would be working in the lab and carrying out research. In  
25 most cases, if they didn't do that well in teaching, they

1 usually prefer to be in the lab.

2 HEARING OFFICER LEACH: All right. Same center, how do  
3 you -- that's not S-I-N-G is it or it's something --

4 THE WITNESS: S-I-N-G-H, after Krishna Singh, a benefactor  
5 of the university. And so that is an interdisciplinary  
6 building that was put up to allow modern experimental space  
7 that would allow an expansion of our activities in SAS and  
8 SEAS, in particular for high-end nanofabrication, and for  
9 microscopy, and microanalysis, and precision measurement.

10 HEARING OFFICER LEACH: So this is a place where -- I'm  
11 going to try to simplify this because I'm not clear of all the  
12 terminology that you used, but I know it's related to science.  
13 This is a location where students in SAS and Engineering do  
14 work?

15 THE WITNESS: Yes, correct.

16 HEARING OFFICER LEACH: And they are doing that work  
17 together?

18 THE WITNESS: Yes.

19 HEARING OFFICER LEACH: Who is overseeing that work?

20 THE WITNESS: The outcome of that work would be overseen  
21 by the individual principal investigators. But the actual  
22 activities are overseen by professional staff of the Singh  
23 Center in the areas that help to operate the tools, make sure  
24 that people are working safely. They conduct extra training  
25 activities for users. So the model is -- in Penn's model, it's

1 about education. So rather than having the technicians do the  
2 work for the students, the students are taught to be able to  
3 carry out the work themselves and become self-sufficient and  
4 learn those techniques. Their role is in safety, maintaining  
5 the equipment, and providing the training, but the actual  
6 execution of the research is done by the students and post-docs  
7 as part of their studies.

8 HEARING OFFICER LEACH: When you mentioned PI, does that  
9 mean that the students that are working in the Singh Center are  
10 doing work that's funded by grants?

11 THE WITNESS: By grants, or fellowships, or in some cases  
12 through internal programs at Penn. The majority comes from  
13 externally funded efforts and those fall into three categories.  
14 They may be federal funded, industrially sponsored research, or  
15 through philanthropic organizations, or nonprofits.

16 HEARING OFFICER LEACH: The students that are working in  
17 the Singh Center, are they all PhD students?

18 THE WITNESS: No. There is a mix of undergraduates and  
19 graduate students. And when we say graduate students that also  
20 includes masters and PhD. The majority of the work carried out  
21 in that center is PhD students from across different schools,  
22 but again the majority come from SAS and SEAS.

23 HEARING OFFICER LEACH: And the Singh Center is its own  
24 building?

25 THE WITNESS: It's a separate building. It is -- there

1 are examples of institutes, structures that are distributed  
2 where there is no single building but people work from  
3 different areas. The Singh is one of the examples where people  
4 actually carry out the activities in a single space. So the  
5 STC which was mentioned earlier doesn't have a building. It's  
6 a multimillion dollar activity, but it is carried out in  
7 separate labs around the university, a lot of mixed.

8 HEARING OFFICER LEACH: That's actually the next thing I  
9 was going to ask you so that's good.

10 THE WITNESS: Oh, sorry.

11 HEARING OFFICER LEACH: I wanted to clarify that because I  
12 have in bold that that's the Science Technology Center?

13 THE WITNESS: Science & Technology Center. And that's  
14 recently funded by the NSF. I think I know the number, but I  
15 won't speculate. Those are very large grants. They are  
16 focused around a certain area of activity. They involve  
17 principal investigators from different parts of SAS, SEAS, the  
18 medical school. I don't know if there are any other schools  
19 that are involved but it's an exciting opportunity, again, very  
20 highly interdisciplinary. One of the PIs for that project is  
21 from the medical school. The other is from engineering.

22 HEARING OFFICER LEACH: But the Science & Technology  
23 Center, they're not physical -- that's not a physical building.  
24 This is just work that takes place in a lab on campus?

25 THE WITNESS: It takes place in multiple labs on campus,

1 but the magnitude of the funding is comparable to that which  
2 originally launched the other buildings. The thing to think  
3 about in modern research, because funding usually runs in  
4 blocks of 5 to 10 years, it's often most effective not to  
5 create new buildings but to building the scientific program so  
6 that people, they work as a unit or a larger team, but we  
7 don't necessarily dig a new foundation to build for those  
8 opportunities.

9 HEARING OFFICER LEACH: This work is done, is this by  
10 undergrads and grads or just grads?

11 THE WITNESS: It's a combination. Most of the work is  
12 done by graduate students because the undergraduates have a  
13 heavier course load throughout the regular year. But a number  
14 of undergrads are supported in summer research. And in my lab  
15 often a few carry out research throughout the semester in sort  
16 of part-time mode. Again, they might choose for their  
17 requirement some can do research as independent study and get a  
18 grade for that or they may do some research and be paid for  
19 that work part-time. It's really a choice as to what helps  
20 them the most with their own personal situation.

21 HEARING OFFICER LEACH: Still on STC, you said most by  
22 grad students, that means masters and PhD students?

23 THE WITNESS: Master students would contribute, but the  
24 other significant population would be post-doctoral fellows.  
25 There are post-doctoral researchers that will also be supported

1 under the STC or these other types of structures. The number  
2 of graduate PhD students will always be higher.

3 HEARING OFFICER LEACH: Okay.

4 THE WITNESS: Again, because it's about the education. So  
5 you can staff a project -- if you only care about the results,  
6 you can staff it with a trained professional post-doctoral  
7 fellow and they aren't taking courses, classes, there are not  
8 doing all of the professional development parts. But we're  
9 about teaching and training, and so that's why the work is  
10 taken up by PhDs.

11 HEARING OFFICER LEACH: Can you give me an example with  
12 regard to STC how a student in SAS and Engineering will come to  
13 work together?

14 THE WITNESS: In that case, often what you need to carry  
15 out projects is to have people that are doing experiments that  
16 combine different skills. In this particular STC science  
17 center it's a mixing of biology and engineering, and it's  
18 mechanobiology so you literally have mechanical engineers that  
19 are measuring physical properties next to the biologists that  
20 are growing cells, or tissue implants, or other things. And  
21 they are working and taking the data together, analyzing the  
22 data together. It's actually kind of exciting because then  
23 each learns a little bit more about the other's areas of  
24 background and that is -- that's the model for modern research  
25 is that type of experience.

1 HEARING OFFICER LEACH: The research that they are doing  
2 is based on the funding from NSF?

3 THE WITNESS: In that case, the primary source of the  
4 funding is NSF. There are other centers that are organized  
5 with funding that comes from different departments.  
6 Historically, the Environmental Protection Agency has funded  
7 similar center activities. The Department of Defense has a  
8 number of agencies that also fund multi-investigator,  
9 multi-institution grant opportunities.

10 HEARING OFFICER LEACH: I'd like to move onto the -- is it  
11 M-R-S-C?

12 THE WITNESS: M-R-S-E-C, MRSEC.

13 HEARING OFFICER LEACH: What does that stand for?

14 THE WITNESS: That's the Materials Research and  
15 Engineering Science Center. That is a program within NSF that  
16 funds interdisciplinary work in materials broadly, not just  
17 materials engineering but chemistry, and physics, and biology,  
18 and so on. Those are centered at universities and they are  
19 competed or universities compete with multiple investigator  
20 proposals for the opportunity to host and be supported by  
21 MRSEC. Penn has one of the longest surviving MRSECS in that  
22 competition, again stretching back to the origin of the project  
23 in the 1960s. But there are a collection distributed around  
24 the United States. Every six years or so there is a  
25 competition to see whether existing centers should be funded or

1 be replaced by a new center. So it's a constant renewal  
2 process.

3 HEARING OFFICER LEACH: MRSEC is not a separate building?

4 THE WITNESS: It is a program. Because of the historic  
5 nature, the LRSM was actually funded and built with the support  
6 of the predecessor of that program. In the 1960s there was  
7 sufficient resources to support the science and also construct  
8 the physical infrastructure. Over time the funding has been  
9 relatively flat and so we no longer build infrastructure. We  
10 just support students. The cost of doing research, 80 percent  
11 is supporting the students. It's really all about --

12 HEARING OFFICER LEACH: So it's kind of the same as the  
13 STC, that's the type of response you gave for that.

14 THE WITNESS: The new model is very much like the STC.

15 HEARING OFFICER LEACH: Okay. Can you give me an example  
16 within MRSEC how someone from SAS and Engineering would work  
17 together?

18 THE WITNESS: Sure. Within the MRSEC there are different  
19 groups that are called -- they are interdisciplinary research  
20 groups, IRGs, sorry, too many acronyms. So within that group,  
21 which I contribute to, we have researchers who come from  
22 chemistry, physics, electrical engineering, material science --  
23 who else is -- yeah, that's it for us, well, mechanical. And  
24 our students would -- we define certain areas of interest. We  
25 recruit students who are supporting another program. They meet



1 regularly. We develop ideas of experiments that link between  
2 those different groups because again the emphasis is on  
3 interdisciplinary output.

4 The center is actually evaluated, the output from these  
5 programs, you actually -- they count most highly in evaluation  
6 the papers and projects that have combinations of PIs,  
7 combinations of students that really demonstrate that we're  
8 working as interdisciplinary teams. So people would literally  
9 be in the lab, someone might be making the samples or modifying  
10 them. They would take them over to their friend, and they  
11 would sit together and do some measurement. That person who  
12 was more measurement oriented might have a bigger hand in how  
13 they analyze the data. They feed that back into making a  
14 better material or doing something different the next time.

15 But the students develop sort of a community around these  
16 efforts and meet on an approximately twice a month basis, as  
17 long with the PIs to evaluate what's been interesting in the  
18 previous period and what the plans are for the next few weeks.

19 HEARING OFFICER LEACH: So the PI, I know that's the  
20 principal investigator, that's someone who would come from SAS  
21 or Engineering as well?

22 THE WITNESS: Yeah, right.

23 HEARING OFFICER LEACH: You talked about -- back to TAs.

24 THE WITNESS: Yeah, sure.

25 HEARING OFFICER LEACH: With regard to TAs, you said --

1 you gave the example if I guess the number of TAs depends on  
2 the -- no, I'm sorry. What they do depends on the expectation  
3 of the class. You gave an example of a freshman chemistry  
4 class and that TA would have a big job. You mentioned  
5 tutorials and recitations. Would the TA be doing the tutorials  
6 and recitations alone?

7 THE WITNESS: In larger classes, usually the class is then  
8 divided up into different recitations sections so it provides a  
9 more internet experience. Because I teach an honors section  
10 where the total number of students is smaller, there is a  
11 single TA that supports that work. But they would oversee  
12 that. Some of the tutorials, the faculty may come to, might  
13 not, depending. And we would sometimes hold separate sessions,  
14 too. But the students who are doing the TA actually get  
15 experience in discussing the work, presenting some of it,  
16 clearing up any kind of questions or concerns that the students  
17 have. They do a really good job actually.

18 HEARING OFFICER LEACH: Just so I'm clear, regarding the  
19 recitations, are you saying that a TA would do that alone?

20 THE WITNESS: Yes. The TA, again, there may be  
21 recitations -- in a larger class, there may be recitations or  
22 review sessions in which more than one TA might be involved,  
23 but the classes that I teach, because of their size, generally  
24 have one, occasionally two TAs. And I have had chemistry  
25 students who TA in MSE. I've had MSE PhD students who TA as

1 part of their teaching training in chemistry.

2 HEARING OFFICER LEACH: I'm sorry. I'm going to jump  
3 around because I realize there is one thing I forgot to ask  
4 you. I'm going to go back to the MRSEC and just ask when the  
5 different students are working under MRSEC, the SAS or from  
6 Engineering, who oversees their work?

7 THE WITNESS: Overseeing their work, I guess it would be a  
8 grouping of the faculty members who are within that independent  
9 research group would be assessing the progress of the projects  
10 as a whole, but also the students in the projects whether they  
11 are, you know, do they need more help, what the circumstances  
12 are. Ultimately, each of those students would have a PhD  
13 advisor or occasionally a co-advisor and so they would be  
14 responsible for supporting that student's progress. So class  
15 evaluations, their progress in their research group, all those  
16 things are not determined within the MRSEC. It would still be  
17 the support of the principal investigator and the graduate  
18 group to which the graduate student belongs.

19 HEARING OFFICER LEACH: Would that answer be similar for  
20 students doing work in STC?

21 THE WITNESS: Yes, very similar experience. That's a  
22 newer launch of the grant, but that's the expectation. It's  
23 just ramping up now.

24 HEARING OFFICER LEACH: They would be overseen by the PI  
25 or their individual graduate group?

1 THE WITNESS: Right. Ultimately, their progress towards  
2 their own completion of their goal of a PhD would be overseen  
3 by their PhD advisor or advisors and the graduate group to  
4 which they are affiliated.

5 HEARING OFFICER LEACH: Would that also be the same for  
6 LRSM?

7 THE WITNESS: The LRSM is the physical building and it  
8 houses the laboratories from both SAS and SEAS of different  
9 faculty members. There it does happen that you can have shared  
10 offices and shared labs where the students are from both  
11 schools, but that's just a matter of, you know --

12 HEARING OFFICER LEACH: Okay, I'm sorry. I forgot that  
13 that was a separate building.

14 THE WITNESS: It's okay. It's not easy.

15 HEARING OFFICER LEACH: Yeah, lots of acronyms. When  
16 students are working in that LRSM building, are they also --  
17 are they overseen by their graduate group?

18 THE WITNESS: Yes. Again, to provide continuity, each  
19 student has an affiliation with a graduate group. They have  
20 the support and advocacy of a thesis committee. The  
21 composition of the committee is defined by the requirements of  
22 the graduate group. But the students get to pick who is on  
23 their committee. That is the mechanism to provide support,  
24 evaluation, and when necessary advocacy on behalf of the  
25 student.

1 HEARING OFFICER LEACH: Okay. I don't have any more  
2 questions. I appreciate your time. But I know that the  
3 Employer or Union may have something.

4 REDIRECT EXAMINATION

5 BY MR. FRYMAN:

6 Q Very quickly, the teaching activities, the TA activities  
7 which you testified, in your view is there pedagogical value to  
8 those activities?

9 A Oh, there is tremendous value. There is value in terms of  
10 development, both of their understanding of the material so  
11 their technical strength, but also a big part of what we do is  
12 communication skills and understanding how to deliver  
13 information at different levels. I think there is a lot of  
14 value in that piece. It makes them better scientists. Even  
15 the students that have fellowships and are paid for are often  
16 encouraged to have some experience in teaching because it tends  
17 -- often the best TAs are also among the best researchers. The  
18 enthusiasm and the insight that you get from that interaction  
19 is really very valuable.

20 Q The PhD students working in the labs, they are publishing  
21 papers?

22 A They publish papers. They are engaged in different  
23 activities, professional science organizations. They --

24 Q Let's focus on the papers. They are involved in  
25 publications?

1 A Yes.

2 Q Those publications are the result of these experiments  
3 that they are conducting?

4 A The experiments or in some cases they may be more  
5 computational in nature, also a type of experiment. So there  
6 are things that can involve evaluation. Most of the time there  
7 are multiple authors doing different parts to those  
8 publications. Almost always they involve the principal  
9 investigator, but actually there are some papers that are  
10 published by students independent of the principal  
11 investigator. It's just not as common these days.

12 Q These experiments, publications, all of that can also  
13 contribute to the student's dissertation?

14 A Oh, yeah, absolutely. That development, actually, so  
15 often the chapters that make up a modern thesis in the United  
16 States tend to be expanded in perhaps more detail, but they are  
17 made up of a collection of the core elements that were in the  
18 publications that the students contributed to. It'll emphasize  
19 more heavily the ones in which that particular student was a  
20 leading contributor, rather than more of a supporting role.  
21 But that is quite common. The dissertation is -- it has extra  
22 information and insight that isn't in any of the papers, but  
23 the integrated contribution of the papers is a big chunk of the  
24 thesis.

25 MR. FRYMAN: That's all I have. Thank you.

1 HEARING OFFICER LEACH: For the Union?

2 MS. ROSENBERGER: Just one area that I neglected to ask  
3 about originally.

4 RE CROSS EXAMINATION

5 BY MS. ROSENBERGER:

6 Q You had said something on direct about from time to time  
7 an engineering student -- an engineering PhD student might  
8 switch to chemistry or vice versa.

9 A Right.

10 Q Am I correct in understanding that that -- I'll just use  
11 the example of engineering going to chemistry. That would  
12 require that student to be admitted to the chemistry graduate  
13 group?

14 A That's correct. And then they would meet to make sure  
15 that they had qualifications or equivalent course materials so  
16 that they would meet those. Maybe the most recent example was  
17 a student who began in chemistry, started doing research,  
18 decided that she liked doing experiments more than she liked  
19 theory. She switched to material science and, yeah, just  
20 recently is now a professor at the university -- Ohio State  
21 University. But she is now a professional in material science  
22 after starting her graduate studies in chemistry. But it was a  
23 fairly smooth transition because it does mean that there are  
24 some extra courses sometimes to match up backgrounds so that  
25 they can be competitive in terms of their ultimate career goals

1 and that they know the background material. That's rare that  
2 people -- people don't often transition, but where you -- I  
3 guess the nice part is you want to follow a student's  
4 interests, right? The most important thing is to let them get  
5 what they need and so you want to have a mechanism that allows  
6 people to change course if they feel that that's their best  
7 opportunity to get ahead in their goals.

8 MS. ROSENBERGER: That's all I have.

9 HEARING OFFICER LEACH: Anything else from the Employer?

10 MR. FRYMAN: Just very quickly.

11 FURTHER REDIRECT EXAMINATION

12 BY MR. FRYMAN:

13 Q When we talked about doing these experiments and  
14 publishing the papers, the testimony I just asked you about  
15 rolling up in their dissertation, that's when they are serving  
16 as an RA?

17 A It's a combination. They are still working in the lab and  
18 engaged in activities even when they are teaching. Teaching  
19 takes a certain portion of the day and they usually are also  
20 working in the lab, but it's a question of how much time you  
21 have. Generally, they do less research in the times when they  
22 are also contributing to the teaching mission. All of the  
23 students teach, but often they teach in the mode of being  
24 mentors so virtually all the graduate students are actually  
25 teaching one on one, mentoring undergraduates, visitors. There



1 are different -- there are formal teaching roles and informal  
2 teaching roles.

3 Q Thank you.

4 HEARING OFFICER LEACH: Does the Union have anything else?

5 MS. ROSENBERGER: No.

6 HEARING OFFICER LEACH: I don't either. Thank you.

7 THE WITNESS: Thank you.

8 HEARING OFFICER LEACH: Okay, have a good day.

9 (Witness excused.)

10 HEARING OFFICER LEACH: Can we go off the record?

11 (Off the record from 3:55 p.m. to 4:02 p.m.)

12 HEARING OFFICER LEACH: Back on the record.

13 Good afternoon.

14 THE WITNESS: Good afternoon.

15 HEARING OFFICER LEACH: How are you?

16 THE WITNESS: I'm fine.

17 HEARING OFFICER LEACH: Good. Can you stay and -- for the  
18 record, say and spell your first and last name?

19 THE WITNESS: Patricia Rose, P-A-T-R-I-C-I-A, Rose,  
20 R-O-S-E.

21 HEARING OFFICER LEACH: Can you raise your right hand,  
22 please.

23 (Whereupon,

24 PATRICIA ROSE,

25 was called as a witness by and on behalf of the Employer, and

1 after having been duly sworn was examined and testified as  
2 follows:)

3 HEARING OFFICER LEACH: Thank you.

4 DIRECT EXAMINATION

5 BY MS. DANTE:

6 Q Good afternoon, Ms. Rose.

7 A Good afternoon.

8 Q Where are you currently employed?

9 A I'm employed at the University of Pennsylvania. I'm the  
10 director of Career Services.

11 Q How long have you been the director of Career Services?

12 A Well, I hate to confess but since 1982, which is probably  
13 before some people in this room were born.

14 Q How long have you been at Penn?

15 A Well, I came to Penn in 1973 to do graduate work. And for  
16 all intents and purposes, I've never left. I did leave for one  
17 year and I taught for one year then hurried back to Penn.

18 Q You mentioned you came for graduate studies. Can you tell  
19 us your educational background?

20 A Yes. I have an undergraduate degree in English. I was in  
21 the doctoral program in English at Penn. I failed to complete  
22 that degree so I'm ABD in English.

23 Q You didn't need to say that.

24 A Well, I have to tell the whole truth, so --

25 Q All right. As the director of Career Services at Penn,

1 are you and your team responsible for Career Services for all  
2 PhD students at Penn?

3 A Yes.

4 Q Would that include all nine schools with PhD students?

5 A Yes.

6 Q Just so the record is clear that would be the School of  
7 Arts & Sciences or SAS, the School of Design, School of Social  
8 Policy & Practice, Education, Nursing, Annenberg, the  
9 Biomedical Graduate Studies Program in the Perelman School of  
10 Medicine, Engineering, and Wharton?

11 A That's correct.

12 Q Can you explain some of the services you provide to Penn's  
13 doctoral students?

14 A Well, we provide extensive services to students as soon as  
15 they wish to come in. Sometimes, that's right away when they  
16 start their graduate work, more commonly after they've been at  
17 Penn for a year or two. We provide individual one on one  
18 career advising to graduate students. We also do an extensive  
19 array of programs. We have a web site that gets millions of  
20 hits a year covering all aspects of career decision-making and  
21 the job search.

22 Q You mentioned these programs. Do you conduct these  
23 programs over the summer?

24 A No, not really over the summer. We do about 100 programs  
25 a year. Almost all of those are during the academic year, in

1 the fall and spring semesters. This summer I think we're doing  
2 two programs that were requested by individual groups. But  
3 there aren't enough students around to offer programs during  
4 the summer.

5 Q I'm going to show you what has been marked as  
6 Employer's 48.

7 (Employer's E-48 identified.)

8 MS. DANTE: Just so the record is clear, you'll see there  
9 are some inserts. The web page had some issues printing out  
10 some of the graphics, but those are the full pages. I  
11 mentioned to Ms. Rosenberger that I will send her the  
12 electronic link so she has the full copy electronically. And I  
13 can do that for you as well, Madam Hearing Officer.

14 HEARING OFFICER LEACH: Okay. This is fine. As long as  
15 the court reporter has the whole document, I'm good.

16 MS. DANTE: Okay, great.

17 BY MS. DANTE:

18 Q Ms. Rose, do you recognize that document?

19 A Yes. It was conducted -- this was a survey that was  
20 conducted by members of my staff in cooperation with the  
21 provost's office about five years ago. We seldom do alumni  
22 surveys. We wanted to know what happened -- what PhDs were  
23 doing about 10 years out. We surveyed graduates 8 to 13 years  
24 out to get a large enough data set.

25 Q When it comes to PhD student, in your experience what are

1 they most interested in doing after they get their degree?

2 A Well, most told us in this survey that they would be  
3 interested in a faculty role or -- well, we asked what do you  
4 think you're going to do right after you get your degree and a  
5 certain number said they would do a post-doc.

6 Q What's a post-doc?

7 A A post-doc is additional training that doctoral -- that  
8 new PhDs undertake. Most STEM disciplines expect that you will  
9 do a post-doc after completing the PhD.

10 Q You mentioned according to the survey that most said that  
11 they wanted to go into academia. Can you identify for us where  
12 we would find that data?

13 A That question was on the third page.

14 Q Okay, great, thanks. Did you also collect data on what in  
15 fact PhD students actually were doing when they graduated?

16 A Right. Yeah, we said did you end up doing what you  
17 thought you would do after you got your degree. And --

18 Q Where are you reading from? Sorry.

19 A Page 4. 69 percent said, yeah, I am doing what I expected  
20 to be doing.

21 Q Is there any other data in here that shows the career  
22 paths of the PhD students who responded to this study?

23 A Well, yeah. Then we asked them at this point about 10  
24 years out what they were doing.

25 Q Where are you reading from?

1 A I'm so sorry, Page 6.

2 Q Great, thank you.

3 A What industry are you employed in and 57 percent said  
4 higher education. Another 11 1/2 percent said  
5 healthcare/medicine. We have a number of doctoral students who  
6 are dual degree students getting MD/PhD degrees, and those  
7 students would be perhaps engaged in clinical practice and  
8 research.

9 Q For those that do go into academia, did you collect data  
10 on what types of positions they held?

11 A Yes, at the bottom of Page 6. 80 percent are professors.

12 Q In your role as the director of Career Services, do you  
13 assist PhD students in targeting these careers in academia?

14 A Oh, certainly. We work with students to make sure that  
15 they are preparing themselves to go on the academic job market.  
16 It's a tough market. In many disciplines it's very difficult  
17 to find a job. And we want to make sure that they have done  
18 everything they possibly can to be strong candidates. That  
19 would include having a strong research record and a strong  
20 teaching record among other things.

21 Q If we turn I think to page -- it's on loose-leaf pages,  
22 13, did you also collect some information from PhD students  
23 about what they felt was important?

24 A Yes. We asked them what advice would you have for current  
25 students. Like most PhDs, they were willing to provide lots of

1 advice. And we gathered that advice in different categories.  
2 The first was publish. It's essential that you maintain a  
3 strong record of publication and establish that early on while  
4 in graduate school if at all possible. Second, select good  
5 advisors and mentors, and there are comments about that. The  
6 third, it's essential to network, to become -- to know people  
7 who are important in your field. The fourth and I'm having  
8 trouble turning the pages was teaching experience.  
9 Demonstrated ability to teach in multiple fields was a good  
10 one. And this interested me because I overheard the testimony  
11 of the previous witness, this person says his or her teaching  
12 experience was decisive in getting my current position; I  
13 appreciate Penn's support for interdisciplinarity. I think  
14 Penn is noted as a university that has many, many  
15 interdisciplinary programs. But there are other comments here  
16 on teaching. And then good preparation.

17 Q In terms of helping students prepare to get their first  
18 job, are you involved in helping them with their CVs?

19 A Yes. We do programs and we work individually with  
20 students on CVs, cover letters, teaching statements, teaching  
21 dossiers, statements of research purpose. We talk about whom  
22 they might ask for letters of recommendation.

23 Q You mentioned a couple of those things and I'll show you  
24 what I'm going to mark as E-49.

25 (Employer's E-49 identified.)

1 BY MS. DANTE:

2 Q Ms. Rose, do you recognize this document?

3 A Yes. These are job descriptions, the job announcements I  
4 should say.

5 Q You mentioned -- one of the things I think you mentioned  
6 that was important to have on a CV was teaching experience.

7 A Yes.

8 Q If we look at the Georgia State University job posting,  
9 will we find some of those teaching requirements in this job  
10 posting?

11 A Right. It says here that the candidate would have to  
12 provide a statement up to two pages in length of teaching  
13 interests and philosophy.

14 Q What is teaching philosophy?

15 A Teaching philosophy is your statement of what you wish to  
16 accomplish in the classroom and how you are going to go about  
17 doing that. And there are various ways that people can teach.  
18 So they have to talk about those things. They might say that  
19 they would go about it one way for a service class, a freshman  
20 course that everyone is required to take in a certain  
21 discipline, and they might go about teaching in a different way  
22 in an upper-level seminar or majors in their department. This  
23 is a place where you could include that teaching philosophy.

24 Q How does a PhD student go about obtaining their teaching  
25 philosophy?



1 A Well, we can discuss it with them. We actually have a  
2 program on developing your materials for the job search and we  
3 feature people from our Center for Teaching and Learning, which  
4 is a wonderful resource that we have at Penn. They actually  
5 have materials that they can share with students on how to  
6 write your teaching philosophy, what is a teaching philosophy.  
7 It's not that we're saying this should be your philosophy, but  
8 these are the questions that you should think about as you are  
9 crafting that. And I think through it all you want to  
10 communicate, the student rather wants to communicate that he or  
11 she is passionate about teaching.

12 Q In your experience, do the students often highlight the  
13 experience they have received as a teaching fellow or a  
14 teaching assistant?

15 A Yes. It's essential that they have that experience as  
16 they go on the job market.

17 Q If we look down to the second entry on Employer 49, for  
18 the University of California at Berkeley, will we see the sort  
19 of emphasis on teaching experience in this job posting?

20 A Yes. The candidate is asked for a letter, a CV, list of  
21 publications, a dissertation abstract, and a teaching dossier.

22 Q What is a teaching dossier?

23 A This is an opportunity to compile all the information that  
24 you have on your teaching. You could give examples of syllabi  
25 that you have used in your teaching. You could have reading

1 lists for the courses that you have taught. If you have them,  
2 course evaluations could be included, if you're proud of them.  
3 It would be an opportunity to include a letter. If for  
4 instance you got a certificate from the Center for Teaching and  
5 Learning, you could include a letter or certificate from that  
6 office saying that you had actually been working on your  
7 pedagogy and taking advantage of their services. This is an  
8 opportunity for you to bring all that material together.

9 Q Looking at Employer 49, are these two job postings typical  
10 of most of the job postings you would see in higher education?

11 A Yes. Right now almost every job posting is going to say  
12 you have to have excellence in research and excellence in  
13 teaching.

14 Q So that's basically an expectation for when a PhD student  
15 graduates from Penn in order to get a job in academia, they are  
16 expected to have already had teaching experience.

17 A Yes.

18 Q What are some other critical components of a CV when it  
19 comes to obtaining a job?

20 A Well, a CV, you have obviously your educational  
21 background, the list of our publications, any other experience  
22 that you might have had. Candidates certainly will list their  
23 teaching experience and any related research experience that  
24 they want to call out, a list of their references, committee  
25 service, volunteer activity. Faculty members are evaluated

1 once they are hired on research, teaching, and service. So if  
2 you have already been involved in service work then this is an  
3 opportunity to include that.

4 Q You mentioned publications. Why are publications  
5 important to include on a CV?

6 A Well, you're applying for a job as a teacher and a  
7 scholar, and you have to be able to demonstrate both those  
8 things.

9 Q So when it comes to let's say the hard sciences, are the  
10 publications that are typically listed on the CV the ones that  
11 are written with faculty as part of a grant?

12 A Frequently.

13 Q Are those same publications oftentimes part of their  
14 dissertation?

15 A Yes, I would say so.

16 Q You mentioned references. Do faculty oftentimes submit  
17 letters of recommendation?

18 A Faculty, yes, are asked to submit letters of  
19 recommendation. And we talk with students about selecting  
20 which faculty members they might want to have write.

21 Q Would those faculty opine on teaching?

22 A Yes. In fact, I think it's important when you think about  
23 your recommenders, we would say to a student who is going to be  
24 commenting on your research; presumably, your advisor, your  
25 dissertation supervisor. If you're applying in a subfield,

1 have you taken course work with a faculty member in a subfield,  
2 that person should write about that. And someone needs to  
3 write about your teaching.

4 Q In your role as director of Career Services, do you keep  
5 up to speed on what employers across industries are looking for  
6 in applicants?

7 A Yes.

8 Q Can you tell us what some of the more prominent skills  
9 employers are currently looking for?

10 A Well, I'm familiar with two recent surveys. My  
11 professional association, the National Association of Colleges  
12 and Employers asked employers what they were looking for in job  
13 candidates. Two of the top five were related to communication,  
14 oral communication and written communication. We work with  
15 students from freshman through PhD. That holds true across the  
16 board. There was a more recent study by the GMAC, the Graduate  
17 Management Admissions Council that surveyed MBA employers and  
18 asked them what were the skills that they were looking for.  
19 And interestingly, four of the top five could be classified as  
20 communication skills, speaking, writing, presentation skills,  
21 and listening carefully. Other skills might be ability to work  
22 in a team, leadership, things like that.

23 Q What are some of the ways that Penn prepares its PhD  
24 students to obtain these types of skills that employers are  
25 looking for?

1 A Well, the majority of our graduate students are pursuing  
2 jobs in teaching and research. But these are smart people and  
3 some choose to investigate and explore other career options.  
4 Those might be in consulting, in technology, in nonprofits and  
5 government service. One of the things they can demonstrate are  
6 these strong communication skills through their teaching. They  
7 can demonstrate strong problem-solving skills through their  
8 research.

9 Q How do you view the fellowship and assistantship  
10 opportunities at Penn when it comes to positioning the PhD  
11 students for future careers?

12 A Again, I think they are essential. That's experience that  
13 they need to have. Those are skills they need to develop as  
14 they go forward.

15 MS. DANTE: I have no further questions. I would just  
16 like to move in Employer 48 and 49.

17 MS. ROSENBERGER: No objection.

18 HEARING OFFICER LEACH: Employer 48 and 49 are received.  
19 (Employer's E-48 and E-49 received.)

20 HEARING OFFICER LEACH: Union?

21 MS. ROSENBERGER: Yes.

22 CROSS-EXAMINATION

23 BY MS. ROSENBERGER:

24 Q Good afternoon, Ms. Rose.

25 A Good afternoon.

1 Q My name is Amy Rosenberger and I am one of the lawyers  
2 representing the Union in this case.

3 A Okay.

4 Q You said that employers of students -- former students who  
5 have graduated at all levels, undergrad and graduate, are  
6 looking for good communications skills, right?

7 A That is correct.

8 Q What are the ways -- so if undergraduates need good  
9 communications skills, does Penn have them work as teaching  
10 assistants?

11 A Well, there are other ways that you can develop, you can  
12 demonstrate communications skills. There are -- some schools  
13 have actual programs in developing strong presentation skills.  
14 I mean there are various ways obviously. You can engage in  
15 student activities where you can engage in presentations.

16 Q When you or your staff work with PhD students to develop  
17 their curriculum vitae, where on -- a curriculum vitae  
18 typically has categories, right?

19 A Correct.

20 Q So there would be like education, publication, and the  
21 publications might be divided up into read articles or books,  
22 or book chapters, or editing, there's all sort of --

23 A It's not quite -- there is not that lengthy of a list for  
24 most doctoral students. I mean they've only been at it for a  
25 certain number of years. If you talked to someone like the

1 gentleman who testified before I did, he probably has 15 or 20  
2 pages.

3 Q Right. We've seen some of those in this case. So when it  
4 comes to experience as a teaching assistant, does that go under  
5 a category of something like relevant work experience or what  
6 would it go under?

7 A Probably teaching experience would be the category that it  
8 would go under.

9 Q And the same, not teaching experience but something  
10 similar, with regard to whatever they would include about their  
11 research activities?

12 A Research experience, teaching experience. It might go  
13 under -- I mean it depends. There are various ways. There is  
14 no one rule. Courses taught could be the heading.

15 Q Okay. I gather from what you're saying, your office  
16 provides career services to students at all levels at Penn.

17 A That's correct. There are some schools we don't serve.  
18 The law school has a separate career center, for instance. The  
19 Wharton MBA program has a separate career center.

20 Q Any others that have a separate career center?

21 A We do not serve MDs, DMDs, or VMDs. Those schools mainly  
22 go into residency programs, those graduates. But we serve  
23 everybody else in the School of Medicine.

24 MS. ROSENBERGER: That's all I have on cross.

25 HEARING OFFICER LEACH: Does the Employer have anything

1 else?

2 MS. DANTE: Nothing further.

3 HEARING OFFICER LEACH: Just a couple of things to clarify  
4 based on what you just said. You said you do not serve Wharton  
5 or law students.

6 THE WITNESS: Wharton MBA students. We serve Wharton  
7 doctoral students and Wharton undergraduate students. The MBAs  
8 have a separate office, which is traditional on most campuses.

9 HEARING OFFICER LEACH: You serve Wharton PhD students.

10 THE WITNESS: We do.

11 HEARING OFFICER LEACH: And law school, no law school  
12 students.

13 THE WITNESS: No law school students.

14 HEARING OFFICER LEACH: You said you don't serve MD, DMD  
15 -- is DMD dental?

16 THE WITNESS: Yes, that's correct. We don't serve the  
17 students in the School of Dental Medicine, all of whom are  
18 getting a DMD. We don't serve the students in the vet school  
19 who are getting a VMD. And we don't serve that one group in  
20 the School of Medicine, the MDs.

21 HEARING OFFICER LEACH: Does medicine have PhDs?

22 THE WITNESS: Yes, and we serve them. They have quite a  
23 large group of PhDs.

24 HEARING OFFICER LEACH: The Employer asked you a question  
25 about -- let me see how to say this. What are employers



1 looking for in job candidates, and you mentioned what MBA  
2 employers are looking for. And then I think maybe it was just  
3 phrased as other employers. What does that mean, any other  
4 employers?

5 THE WITNESS: Well, yeah, not -- all levels. The National  
6 Association of Colleges and Employers works with employers who  
7 employ students at all levels.

8 HEARING OFFICER LEACH: So it's employers who employ  
9 students? Well, that would everybody. That could be a lot of  
10 -- how would you --

11 THE WITNESS: Correct. This is an association that has as  
12 its member group employers across industries who go -- who  
13 partner with colleges and universities to reach out and  
14 advertise their job openings.

15 HEARING OFFICER LEACH: What did you call it, association  
16 of what?

17 THE WITNESS: It's the National Association of Colleges  
18 and Employers.

19 HEARING OFFICER LEACH: That's all I had. Does the  
20 Employer have anything else?

21 MS. DANTE: No, nothing further.

22 HEARING OFFICER LEACH: Union?

23 MS. ROSENBERGER: No, thanks.

24 HEARING OFFICER LEACH: Okay. Thank you very much. I  
25 appreciate it.

1 THE WITNESS: You're welcome.

2 MS. ROSENBERGER: You can leave the witness copies there.

3 THE WITNESS: Oh, the witness copies stay, okay.

4 HEARING OFFICER LEACH: And that's the last witness for  
5 today, right?

6 MS. DANTE: That's correct.

7 HEARING OFFICER LEACH: Oh, we're done. You can step  
8 down. Thank you very much. We appreciate your time today.

9 (Witness excused.)

10 HEARING OFFICER LEACH: I'm just going to do my usual  
11 thing at the end of the day and go over what I believe we still  
12 have outstanding.

13 MS. ROSENBERGER: Do you want this on the record?

14 HEARING OFFICER LEACH: Yes. I think the only thing that  
15 we have outstanding at this point is we're still trying to  
16 figure out the issue with the student worker. Do we have any  
17 more information on that today or no?

18 MS. ROSENBERGER: No.

19 MS. DANTE: Not at the moment.

20 HEARING OFFICER LEACH: Okay. So that's still a category  
21 that the Union thinks should be included, but the Employer  
22 thinks should be excluded.

23 MS. ROSENBERGER: Correct.

24 HEARING OFFICER LEACH: But you're trying to like maybe  
25 get a definition of student workers who are teaching and/or

1 researching?

2 MS. DANTE: To the extent those exist, yeah.

3 MS. ROSENBERGER: We're working on seeing if we can find a  
4 meeting of the minds on this.

5 HEARING OFFICER LEACH: That sounds cooperative, okay.  
6 Does either party have anything else for me, today?

7 MS. ROSENBERGER: Not today.

8 HEARING OFFICER LEACH: Okay, then we can go off the  
9 record.

10 (Whereupon, at 4:29 p.m., the hearing in the  
11 above-entitled matter adjourned.)

1

C E R T I F I C A T E

This is to certify that the attached proceedings done before the NATIONAL LABOR RELATIONS BOARD REGION FOUR

In the Matter of:

TRUSTEES OF THE UNIVERSITY OF PENNSYLVANIA,

Employer,

And

GRADUATE EMPLOYEES TOGETHER-UNIVERSITY OF PENNSYLVANIA (GET-UP), a/w AMERICAN FEDERATION OF TEACHERS,

Petitioner.

Case No.: 04-RC-199609

Date: June 22, 2017

Place: Philadelphia, Pennsylvania

Were held as therein appears, and that this is the original transcript thereof for the files of the Board

\_\_\_\_\_  
Official Reporter

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