

**OFFICIAL REPORT OF PROCEEDINGS
BEFORE THE
NATIONAL LABOR RELATIONS BOARD**

In the Matter of:

Case No.: 13-RC-198325

**UNIVERSITY OF CHICAGO
Employer**

And

**GRADUATE STUDENTS UNITED
Petitioner**

**Place: Chicago, IL
Date: 05/23/17
Pages: 588-805
Volume: 4**

OFFICIAL REPORTERS

**Veritext National Court Reporters
Mid-Atlantic Region
1250 Eye Street, NW – Suite 350
Washington, DC 20005
888-777-6690**

UNITED STATES OF AMERICA
BEFORE THE NATIONAL LABOR RELATIONS BOARD
REGION 13

THE UNIVERSITY OF)
CHICAGO,)
)
Employer,)
) No. 13-RC-198325
AND)
)
GRADUATE STUDENTS UNITED,)
)
Petitioner.)

The above entitled matter came on for hearing pursuant to notice, before CHRISTINA MOLS, Hearing Officer, at The Dirksen Center, 219 South Dearborn Street, Suite 808, on Tuesday, May 23, 2017, at 9:09 a.m.

REPORTED BY: YVETTE BIJARRO-RODRIGUEZ, CSR
LICENSE NO.: 084-003734

APPEARANCES

On behalf of the Employer:
PROSKAUER ROSE LLP
2255 Glades Road
Suite 421 Atrium
Boca Raton, Florida 33431-7360
BY: MR. ALLAN H. WEITZMAN,
MR. STEVE PORZIO,
MR. STEVE PEARLMAN, AND
MR. PAUL SALVATORE
(561) 302-4760
aweitzman@proskauer.com

On behalf of the Petitioner:
DOWD BLOCH BENNETT CERVONE
AUERBACH & YOKICH
8 South Michigan Avenue
19th Floor
Chicago, Illinois 60603
BY: MS. MELISSA AUERBACH
(312) 372-1361
mauerbach@dbb-law.com

- AND -

AMERICAN FEDERATION OF TEACHERS
555 New Jersey Avenue NW
Washington, D.C. 2001
BY: MS. CHANNING COOPER
(202) 393-7472
ccooper@gmail.com

* * * *

THE HEARING OFFICER: On the record. So before we proceed with the Employer's next witness, do the parties have any procedural matters you wish to discuss at this time?

Okay. So Employer Counsel, proceed with your next witness.

MR. WEITZMAN: The University of Chicago calls Dr. Victoria Prince.

(Witness sworn.)

THE WITNESS: Yes.

THE HEARING OFFICER: Please have a seat.

WHEREUPON:

VICTORIA PRINCE, PhD, called as a witness herein, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY THE HEARING OFFICER:

Q. Can you state and spell your name for the record.

A. My name is Victoria Prince, V-I-C-T-O-R-I-A, P-R-I-N-C-E.

Q. Thank you.

BY MR. WEITZMAN:

Q. Good morning, Dr. Prince.

INDEX

VOIR
WITNESSES DIRECT CROSS REDIRECT RECROSS DIRE

Dr. Victoria 591 686 741 743
Prince
Dr. William 750 793
Rando

EXHIBITS

EXHIBIT IDENTIFIED IN EVIDENCE

EMPLOYER'S

No. 27..... 598 600
No. 28..... 606 607
No. 29..... 634 636
No. 30..... 634 636
No. 31..... 634 636
No. 32..... 634 637
No. 33..... 755 756
No. 34..... 763 764
No. 35..... 771 772
No. 36..... 774 775
No. 37..... 777 778
No. 38..... 781 782
No. 39..... 785 786
No. 40..... 786 787
No. 41..... 788 790

PETITIONER'S

No. 16..... 716 717
No. 17..... 717 718
No. 18..... 718 728
No. 19..... 722 732
No. 20..... 722 732
No. 21..... 728 732

A. Good morning.

Q. By whom are you employed?

A. The University of Chicago.

Q. When did you begin at the University of Chicago?

A. October 1997.

Q. What is your current job title?

A. Professor and dean and director of the office of graduate affairs.

Q. Have you held the position of dean and director office of graduate affairs for the entire time you've been employed at the University of Chicago?

A. No.

Q. How long have you held the position of dean and director office of graduate affairs?

A. Since June 2010.

Q. What other positions have you held since you began working for the University of Chicago?

A. I began as an assistant professor, went through associate professor to full. I was also previously the chair of the committee on developmental biology, which is a graduate program.

Q. For what years were you the chair on the committee on developmental biology?

1 A. From 2003 to 2010.
 2 Q. Please tell the reader of the record
 3 what the committee on developmental biology did
 4 when you were there as chair?
 5 A. It's a training program for graduate
 6 students. Recruited, trained, mentored and
 7 graduated students.
 8 Q. What is your educational background?
 9 A. I have a BSc from Imperial College
 10 London and a PhD from the University of London. I
 11 was a postdoctoral fellow at Princeton University
 12 before coming to the University of Chicago.
 13 Q. Your degree from the Imperial College
 14 was in what major?
 15 A. Biochemistry.
 16 Q. And your PhD from the University of
 17 London was in?
 18 A. Molecular biology.
 19 Q. And from Princeton?
 20 A. I don't have a degree there, but I
 21 worked in developmental biology.
 22 Q. Please tell us what your
 23 responsibilities are as the dean and director of
 24 the office of graduate affairs?
 25 A. So I oversee the office, and the office

1 They're an organization of very active students who
 2 are interested in organizing cultural,
 3 professional, associate, sporting events for the
 4 group of students as a whole.
 5 Q. You also mentioned the BSD diversity
 6 committee. What is that?
 7 A. That is a group of students, faculty and
 8 staff whose goal is to promote retention and
 9 recruitment of minority students, and to ensure
 10 that the rural community is built, and that that
 11 group of underrepresented students feel
 12 appropriately supported within the division and the
 13 university.
 14 Q. Do your responsibilities as the dean and
 15 director office of graduate affairs include support
 16 for the training grant administration?
 17 A. We do have, within the office, two staff
 18 who play a key role in both pre- and post-award
 19 elements of the training grants.
 20 Q. Is there any oversight of funding that
 21 is under your supervision?
 22 A. The centralized organization and
 23 tracking and funding is done within my office in
 24 conjunction with the individual programs.
 25 Q. Do you have any communication

1 is responsible for tracking and looking after all
 2 of the graduate students in the PhD programs within
 3 the division of biological sciences, and that
 4 incorporates recruitment of students, overseeing
 5 the admissions process. All office of admissions
 6 come directly from me. We organize orientation
 7 events. We track students through the academic
 8 process. We organize graduation. We provide
 9 support to various groups such as the student deans
 10 counsel and the BSD diversity committee.
 11 In addition, we run divisional
 12 level training, including training in ethics for
 13 first-year students through the scientific
 14 integrity and responsible conduct of research
 15 course and we run the TA training program and the
 16 TA training course.
 17 In addition, I meet with students
 18 and faculty regularly around academic issues and
 19 interact with other deans of students across the
 20 university.
 21 Q. You mentioned the dean's council?
 22 A. Yes.
 23 Q. Describe the dean's council, please?
 24 A. That's a group of students who represent
 25 all of the different graduate programs within BSD.

1 responsibilities?
 2 A. Yes. Our office is responsible for
 3 maintaining our website which has recently gone
 4 through an overhaul and we're in the process of
 5 establishing new websites for all of the programs.
 6 We also produce a quarterly newsletter from the
 7 office, and we maintain a Facebook presence.
 8 Q. Does the office also have responsibility
 9 for evaluations?
 10 A. Yes. We cover the evaluation of the
 11 TAs, and also we are responsible for organizing
 12 evaluation of faculty who are teaching specifically
 13 in the graduate courses.
 14 Q. Do you interact with the graduate
 15 program directors?
 16 A. I do. I run a course meeting for the
 17 graduate program directors. I also run a quarterly
 18 meeting for the training grant directors, and in
 19 addition, I interact with those individuals
 20 one-on-one quite frequently.
 21 Q. Who is the chair of the graduate
 22 education advisory committee?
 23 A. I am.
 24 Q. What do you do in that capacity?
 25 A. That's a group of senior faculty with

Page 597

1 significant training experience who meet to discuss
2 issues of policy and process related to graduates
3 training in the BSD.
4 Q. How many academic departments does BSD
5 have?
6 A. I can tell you how many graduate
7 programs we have.
8 Q. Then I'll withdraw that question and ask
9 you a better question.
10 How many graduate programs does BSD
11 have?
12 A. We currently have 16 graduate programs
13 that we are recruiting students actively into, as
14 well as two programs still running but in the
15 process of being sunsetted, and there are two
16 additional programs which are joint. We share the
17 biophysical science program with the physical
18 sciences, but that program is administered by
19 physical scientists. There is also an MD-PhD
20 program known as the MSTP medical sciences training
21 program. Has students who are in PhD years for
22 approximately four years of their training. That
23 program has a separate but related administrative
24 structure.
25 Q. You gave me the names of the two joint

Page 598

1 programs. Would you also give me the names of the
2 two programs that are sunsetting and explain what
3 sunsetting means?
4 A. So those two programs, we have
5 determined, are no longer meeting a useful training
6 goal and therefore we've decided to no longer
7 recruit into those programs but rather to focus on
8 the thriving programs being the programs in
9 question.
10 One is based in the pathology
11 department but is known as the molecular medicine
12 and molecular pathology. The other one we
13 typically refer to as the Janelia Farm program. It
14 was joint with the Howard Hughes Medical Institute,
15 which has a research institute in Virginia.
16 Q. I'd like this marked as Employer Exhibit
17 No. 27.
18 (Employer No. 27 was marked.)
19 Dr. Prince, do you recognize
20 Employer Exhibit No. 27?
21 A. Yes.
22 Q. What is it?
23 A. This is pages from a new visional
24 website, the Chicago biosciences website.
25 Q. Please read into the record the programs

Page 599

1 offered by BSD?
2 A. Biochemistry and molecular biophysics,
3 biophysical sciences, which as I mentioned is a
4 joint program, cancer biology, cell and molecular
5 biology, committee on evolutionary biology,
6 computational neuroscience, development
7 regeneration and stem cell biology, ecology and
8 evolution, genetics, genomics and systems biology,
9 human genetics, immunology, integrative biology,
10 the interdisciplinary scientist training program,
11 which is the graduate wing of the MD-PhD program,
12 medical physics, microbiology, molecular metabolism
13 and nutrition, neurobiology, public health
14 sciences.
15 Q. Which program is yours, Doctor?
16 A. All of these programs -- could you
17 rephrase the question?
18 Q. In which -- yes, I'd be happy to.
19 In which of these programs are you
20 a professor?
21 A. I'm appointed several of these programs.
22 My primary training role lies within the
23 development, regeneration and stem cell biology
24 program, but I'm appointed as a trainer in
25 integrative biology which belongs to my home

Page 600

1 department. In the committee on evolutionary
2 biology, genetics, genomics and systems biology,
3 and neurobiology.
4 MR. WEITZMAN: We move to admit Employer
5 Exhibit 27.
6 MS. AUERBACH: No objection.
7 THE HEARING OFFICER: Employer
8 Exhibit 27 is received.
9 BY MR. WEITZMAN:
10 Q. Approximately how many PhD students are
11 enrolled in BSD's PhD programs?
12 A. It's about 385.
13 Q. You mentioned the joint MD-PhD program.
14 Approximately how many students are in that
15 program?
16 A. In the PhD years it's around 33.
17 Q. Your other joint program is with PSD.
18 Approximately how many PhD students are in that
19 program?
20 A. It's approximately the same, 33.
21 Q. How many years does it typically take a
22 PhD student in the BSD to obtain his or her degree
23 from your program?
24 A. Average time to degree is five to
25 eight years.

4 (Pages 597 to 600)

Page 601

1 Q. Does BSD offer any master's degrees?
2 A. There's one master's degree.
3 Q. What is it called?
4 A. Public health sciences.
5 Q. Does that master's degree program have
6 any students at the present time?
7 A. Yes.
8 Q. How many?
9 A. I don't know.
10 Q. Do you know if any students there are
11 TAs?
12 A. They are not TAs.
13 Q. Now, I'd like to talk to you about
14 teaching assistantships. Does BSD have a teaching
15 assistant requirement for its PhDs?
16 A. Yes.
17 Q. What is that requirement?
18 A. BSD requires all PhD students to
19 complete two teaching assistant experiences.
20 Although one of these may be substituted by taking
21 the TA training course.
22 Q. Who establishes the requirement that you
23 just described?
24 A. It's a divisional requirement.
25 Q. Let me direct your attention to the

Page 602

1 board that's on my right. It's a demonstrative
2 exhibit that we prepared. The portion of the
3 demonstrative dealing with BSD biological sciences
4 division. I'd like you to look at it and tell me
5 whether it accurately sets forth the divisional
6 teaching requirements by program for the biological
7 sciences division.
8 THE HEARING OFFICER: And while
9 Dr. Prince is reviewing that, just for the record,
10 we are looking at a representation of Employer
11 Exhibit 15 in the section dealing with the
12 biological sciences division.
13 MR. WEITZMAN: Thank you, madam Hearing
14 Officer. That's helpful.
15 BY THE WITNESS:
16 A. It is an accurate record.
17 BY MR. WEITZMAN:
18 Q. So it lists the two course requirements
19 that are equivalent that you told us about. Are
20 all of these academic requirements?
21 A. Yes.
22 Q. The last column deals with the
23 recommended years to fulfill the teaching
24 requirement. The demonstrative accurately sets
25 forth that time period for each of the programs,

Page 603

1 correct?
2 A. It does.
3 Q. I'd like to talk to you in a little bit
4 more detail about what you said before. You said
5 it could be substituted for training class and
6 the demonstrative uses the phrase "two courses (or
7 equivalent)" with a footnote. So the footnote,
8 Dr. Prince, is on the demonstrative that's the last
9 page of the exhibit that the Hearing Officer
10 identified, and you are footnote one.
11 Could you please read that into the
12 record?
13 A. Biological sciences --
14 MS. AUERBACH: Objection. The document
15 is in the record.
16 THE HEARING OFFICER: It's not yet
17 moved.
18 MS. AUERBACH: Okay.
19 THE HEARING OFFICER: You can go ahead,
20 Dr. Prince.
21 BY THE WITNESS:
22 A. Biological sciences division students
23 may enroll in a classroom based training course in
24 lieu of one of the teaching requirements. Students
25 may also substitute one of the teaching

Page 604

1 requirements with an equivalent activity requiring
2 significant teaching at an off campus site (e.g. TA
3 at the MBL) with divisional approval.
4 BY MR. WEITZMAN:
5 Q. Please describe the training course that
6 is meant in the footnote one.
7 A. This is a quarter-long course that uses
8 practical opportunities for students to practice
9 their teaching skills. They teach to the class
10 while being videoed and are then critiqued by
11 themselves and others afterwards to enable them to
12 develop and improve teaching skills.
13 In addition, there are multiple
14 panels with faculty and senior students who come to
15 the class to discuss with the students a variety of
16 topics relevant to teaching, such as active
17 learning approaches, how to evaluate, how to
18 develop course plans. Also, careers in teaching
19 are discussed in that class.
20 Q. So if I understand what you just told
21 us, the PhD student in the BSD division can satisfy
22 one of the two courses by taking a training class
23 that has nothing whatsoever to do with
24 undergraduates, correct?
25 A. That's correct. There will be a

1 discussion of undergraduate teaching, but they
2 would not actively teach undergraduates in the
3 class.

4 Q. Then the footnote talks about another
5 equivalent activity. Can you be more specific as
6 to what other equivalent activity would satisfy the
7 BSD requirement of the courses, the two courses
8 that are required to be taken?

9 A. Students in the past have petitioned to
10 complete TA-ships at local high schools. This is
11 particularly appropriate for students who wish to
12 move into teaching in that domain after they gain
13 their degree, and they have petitioned the division
14 to be able to do that as a mentor, to experience
15 under the mentorship of Dr. Barry Aprison, who is
16 the education and outreach director of the
17 institute for genomics and systems biology. We
18 have allowed students to use that in lieu of the
19 TA-ship because we feel it's an appropriate TA
20 experience.

21 As listed there, we've recently
22 determined that students who perform two TA-ships
23 for a one-week long intensive boot camp experience
24 for graduate students of the MBL, the marine
25 biological labs, an affiliate of the University of

1 Chicago. You can also use those two one-week
2 experiences in lieu of a regular TA-ship on campus.

3 Q. Again, Dr. Prince, so the record is
4 clear, when BSD grants approval to a PhD student to
5 have one of the high school experiences that you
6 described, does that student have any contact with
7 undergraduate students while performing that form
8 of a TA-ship?

9 A. No.

10 Q. Same question with respect to the boot
11 camp that you just described. Would the students
12 who opt for the boot camp, in other words, who take
13 an equivalent for the TA requirement, have any
14 contact with undergraduate students?

15 A. No.

16 Q. This is Employer Exhibit 28 for
17 identification.

18 (Employer No. 28 was marked.)

19 Do you recognize Employer
20 Exhibit 28?

21 A. I do.

22 Q. What is it?

23 A. It's additional pages from a UChicago
24 Biosciences website that describes the requirement
25 to be a teaching assistant for divisional credit.

1 MR. WEITZMAN: We offer Employer
2 Exhibit 28.

3 MS. AUERBACH: No objection.

4 THE HEARING OFFICER: Employer
5 Exhibit 28 is received.

6 BY MR. WEITZMAN:

7 Q. Would you point out to the Hearing
8 Officer where one would find the description of the
9 equivalent options that PhD students in BSD can
10 choose?

11 A. The bottom of Page 3 of 8 outlines the
12 different options that I previously described.

13 Q. For whose benefit is the TA training
14 course given when a PhD student takes that
15 alternative in order to satisfy one of the course
16 requirements?

17 A. It's for the benefit of the graduate
18 student taking the course.

19 Q. Whose benefit is the other alternative,
20 in the boot camp that someone might take instead of
21 being a TA, for one of the courses?

22 A. For the benefit of the graduate student
23 who's doing the experience.

24 Q. For students who do not opt to take the
25 full course does BDS [sic] offer any other training

1 to TAs before they start as TAs?

2 A. We recommend that students attend a
3 workshop offered by the Chicago Center for Teaching
4 that occurs during -- typically during orientation
5 or early in the quarter. We recommend students
6 take that as they go into the year when they're
7 going to begin their TA experiences, which that
8 year varies according to the program they're
9 registered in.

10 Q. Does BDS provide short workshops
11 throughout the year when teaching?

12 A. Again, the Chicago Center for Teaching
13 provides STEM specific workshops. In particular
14 there is one that happens in early fall quarter,
15 but there are other workshops that occur throughout
16 the year.

17 Q. For a PhD student in BDS who does not
18 take one of the equivalent options, what do they do
19 as a TA?

20 A. Their role as a TA typically involves
21 running discussion sessions for students in the
22 class, grading papers and/or exams, running office
23 hours regularly. And very often the student TA
24 will give one or two mentored lectures to the
25 class. Some classes are lab-based in which case

1 the TA will be primarily involved with working with
2 small groups of students to show them how to use
3 equipment and to guide them through lab exercises
4 under the mentorship of a lab-based instructor.

5 Q. Are BSD teaching assistants ever
6 classroom instructors for an entire course?

7 A. No.

8 Q. I want to talk to you about various ways
9 that you said that you are -- BSD's TAs function
10 when they are TAs. Let me ask you this first.

11 Do they go to the classes that they
12 are TAs in?

13 A. Yes.

14 Q. Why do they do that?

15 A. For several purposes. One is to observe
16 the course instructor's lecturing style and learn
17 from that experience. Another is to ensure that
18 they're fully familiarized with the course content
19 that they will then be using in discussion sessions
20 and office hours.

21 Q. Do you explain to the TA -- when I say
22 "you," I'm talking about you. Do you explain to
23 the TAs who are assigned to your classes why you
24 lecture the way you do?

25 A. I try to point out to the TAs how the

1 lectures are moving towards the overall course
2 objectives, and I also point out to them certain
3 active learning approaches that I like to use that
4 I would also recommend they consider making use of
5 in their discussion sessions.

6 Q. Can you be more specific about the
7 active learning methods?

8 A. I particularly like the approach of
9 engaging the class by asking them to discuss with a
10 neighbor, or in a small group of three or four
11 students, a particular question I posed to give
12 them a few minutes to think about an appropriate
13 answer, and then to call on a student to give a
14 response for their group. I like this approach
15 because it breaks up the class. It makes the
16 students do the work, and they're active so they're
17 not just there listening. And undergraduate
18 students are often more comfortable giving an
19 answer on behalf of their group rather than as an
20 individual.

21 Q. Do you go over with the TAs that are
22 assigned to your class the difficulties of teaching
23 the class and the solutions that you use to deal
24 with those difficulties?

25 A. Yes.

1 Q. Can you give us an example?

2 A. One example that sometimes comes up in a
3 regular lecture situation, but is more likely to
4 come up in a discussion group, is that an
5 individual student tends to dominate the class. I
6 discuss with my TAs the approaches that I found
7 successful to discourage that behavior so that the
8 rest of the class can also participate.

9 Q. I'm curious. What are those?

10 A. In the first instance I would attempt to
11 deliberately avoid eye contact with that person and
12 look out to other individuals in the class hoping
13 that this would encourage the other individuals to
14 begin to speak. If subtle approaches like that are
15 not working, eventually I would ask that individual
16 give other students an opportunity to speak. And I
17 would encourage my TAs in discussion sessions to
18 politely, respectfully do that rather than allow
19 one student to prevent others from having an
20 opportunity to interact.

21 Q. You give them the authority to do
22 something that you normally wouldn't think somebody
23 shouldn't do in a classroom?

24 A. Yes.

25 Q. For whose benefit do you give them this

1 information and knowledge regarding how you conduct
2 your classroom?

3 A. For the benefit of the TA who I'm
4 attempting to train be a more effective teacher so
5 they can use that in their future career.

6 Q. Now, let's talk about another aspect of
7 the TA experience that you described. Tell us how
8 you teach your TAs how to grade students?

9 A. That process begins with encouraging the
10 TAs to assist in development of appropriate
11 questions for an exam or midterm test. I would ask
12 my TAs to provide suggested questions and discuss
13 with them whether I feel those questions are
14 appropriate. Often inexperienced people suggest
15 questions that don't have a single clear answer and
16 is therefore difficult to evaluate. So the design
17 of the question is step one in being able to grade
18 effectively.

19 In return I ask the TAs to look at
20 the questions that I've provided and ensure that
21 they're clear. At the point where the students
22 have taken the test, I would have already developed
23 an answer key with a certain number of points
24 applied to each individual sub-question. I would
25 walk the TAs through my grading scheme to ensure

Page 613

1 that they understand it. Typically I would sit
2 with the TA or TAs while they grade the first few
3 papers answering any questions they have, looking
4 at the grading they're doing to ensure that it fits
5 with my expectations relative to the answer key.
6 When I'm comfortable that they
7 fully understand my expectations, I would leave
8 them to complete the grading, but at the end I
9 would spot check the test papers to ensure that
10 there was uniform grading throughout. And if I saw
11 any issues, I would return that to the TA and work
12 through the papers with them to make sure we have
13 clear, fair grading because that's what the
14 students expect.
15 I always encourage the TAs to come
16 and ask me if they have any questions about the
17 responses that they're seeing from the students if
18 they're uncertain how to grade them.
19 Q. You told me a moment ago about how you
20 ask your TAs for suggestions for exam questions and
21 the importance of clarity. If you had to pick a
22 typical mistake that PhD students make when they're
23 formulating a question for you, what would that be?
24 A. There's several, but one is to ask
25 overly detailed questions that rely on students

Page 614

1 memorizing details that are not necessarily
2 important to their overall understanding rather
3 than encouraging the students to think about the
4 topic from first principles. I would prefer that
5 we were testing the understanding of the underlying
6 principles, not nearly learning from the students.
7 Q. And you teach your TAs how to avoid that
8 problem?
9 A. Yes.
10 Q. Do you teach your TAs how to grade on a
11 curve? And before you answer that question, for
12 the record, what's a curve?
13 A. Different instructors tend to use
14 different approaches to establishing letter grades.
15 My philosophy is that if every student in my class
16 gives me an A performance, they should all get an
17 A. If every student gives me a C performance, they
18 should all get a C. Therefore, my -- that's never
19 happened. Students always fall into a range of
20 qualities.
21 I show my TA how I'd like to take
22 the scores from the exam and plot them in a chart
23 and look for natural breaks between groups of
24 students who are, for example, high A performers
25 versus lower B performers. Where those breaks come

Page 615

1 is not solely dependent on these natural breaks.
2 It's also dependent on my experience to evaluate,
3 essentially, what an A student performance looks
4 like versus a B student performance.
5 Q. Well, you don't use the percentage
6 approach to curves?
7 A. I do not. I found that from year to
8 year the class as a whole can perform at variable
9 levels. I feel it's unfair to penalize a very
10 strong class by ensuring a certain proportion of
11 them have a low grade. The same is true in reverse
12 for a very weak class.
13 Q. For whose benefit do you teach your TAs
14 everything you just testified to with respect to
15 grading?
16 A. That is for the benefit of the TAs so
17 they can learn from my experience in grading.
18 Q. You testified earlier that another one
19 of the functions that a TA has when they are your
20 TA is leading a small discussion.
21 Please describe how you train your
22 TAs and mentor them so they can conduct small
23 discussion groups?
24 A. Discussion groups can fulfill different
25 purposes. But whether the discussion group is

Page 616

1 focused on looking at a piece of primary literature
2 or on going through course material to ensure that
3 all the students understand it, I would discuss
4 with the TAs precisely what domain areas I would
5 like them to go through in a discussion session.
6 And at the beginning of the course, I would sit in
7 on the discussion sessions to observe how the TA
8 was delivering the discussion, and to enable me to
9 give them feedback on how to do a better job if
10 they're struggling.
11 Q. Do you teach them about areas that the
12 students find confusing and how to resolve that
13 confusion?
14 A. Yes. There are certain self-topics that
15 my experience tells me students are likely to find
16 confusing. I would warn the TAs that these are
17 areas that they will need to pay special attention
18 to and encourage them to think about different ways
19 to provide the same information, different
20 analogies to use, different devices, such as
21 schematics or even movies in my field of
22 developmental biology, to better convey the
23 information to the students and avoid confusion in
24 those areas.
25 Q. So this is something that you taught in

1 the class and you know that the students aren't
2 getting?

3 A. A proportion of them are unlikely to, on
4 a first part, get the complexities of, for example,
5 the complex movements of gas relations, which is a
6 topic I cover in developmental biology classes.

7 Q. How do you teach your TAs to cover that
8 in a discussion group?

9 A. First of all, I make that sure that they
10 themselves are fully comfortable with the material.
11 I would point them to web-based resources where
12 they can download movies, because this is a complex
13 set of movements. Seeing the movements from
14 different angles, depicted in different ways, can
15 be very helpful for students to understand that
16 complex set of events. Essentially I provide the
17 TAs with an array of different tools to allow them
18 to go through the same process more slowly from
19 different perspectives to ensure that the students
20 fully understand it.

21 Q. You already mentioned that you explain
22 to your TAs the technique that you use in lectures
23 when somebody predominates the discussion, and you
24 tell them that's something they can also use in the
25 small discussion groups.

1 Is there anything else that you
2 teach them in terms of how to encourage
3 discussions?

4 A. Yes. I suggest to them the, kind of,
5 more open-ended questions that they can ask to the
6 class that are likely to get some discussion going.

7 Q. What's an open-ended question?

8 A. A question that doesn't have a yes-no
9 answer but requires the students to think more
10 deeply about a problem, consider it and talk
11 essentially about the answer.

12 Q. Are there things that you teach them
13 about how to interact with the students?

14 A. Could you clarify?

15 Q. Sure. Is patience a virtue in the
16 classroom?

17 A. I certainly encourage them not to get
18 impatient with students, especially if they're
19 struggling with a concept and also if the TA
20 is -- needs time to think about the answer to a
21 student question, to take that time and to avoid
22 telling the class an answer that they're not a
23 hundred percent sure of. I encourage them to admit
24 to the class when they have reached the limit of
25 their own knowledge and need to go and check on an

1 answer and bring it back to the class later.

2 Q. What do you tell them when they're
3 confronted with off-topic questions by a student?

4 A. I would tell the TA to bring the
5 discussion back to the topic in hand. TAs often
6 have the advantage over the student of knowing what
7 we view as the core course material of the
8 particular elements likely to be examined later.
9 So some of the topic conversations may be science
10 related but not to the core goals, learning goals
11 and objectives of that course. So the TAs are
12 encouraged to make sure the students are focused on
13 those domains.

14 Q. What do you caution your TAs against
15 when one of the students in the discussion groups
16 is not getting it?

17 A. Sometimes one student is really
18 struggling and will use up a large amount of time
19 in a discussion group. I encourage the TAs to
20 recommend to that student that they either come to
21 me in my office hours or to the TA in their own
22 office hours to get clarity on that topic later
23 rather than hold back the class.

24 Q. And when you sit in, what do you
25 observe, and what do you do with your observations?

1 A. I would typically take notes. I'm
2 observing how the students are responding to the
3 TA, whether they look confused, whether their
4 questions are being answered effectively, whether a
5 discussion is being engendered by the TA.

6 Q. Do you give that feedback to the TA?

7 A. Yes.

8 Q. For whose benefit is everything you just
9 testified to with regard to small group
10 discussions?

11 A. That is to the benefit of the TA who is
12 learning how to run such discussion groups and how
13 to interact with the class as effectively as
14 possible.

15 Q. You also said that there are office
16 hours?

17 A. Yes.

18 Q. What are office hours?

19 A. These are time periods that are
20 scheduled when a TA is available for students in
21 the class to come and ask questions.

22 Q. What do you teach your TAs about all the
23 office hours.

24 A. Office hours are probably the most
25 open-ended teaching elements because one cannot

Page 621

1 necessarily predict what questions will be asked.
2 I encourage them to use similar approaches to
3 discussion sessions, to not just give students
4 answers, especially if the students are working on
5 an assignment, but rather to guide the students
6 through the thought process to come to the answers
7 on their own.
8 Q. Do you teach your TAs how to deal with
9 nonacademic issues that come up during office
10 hours?
11 A. I do discuss that. We also discuss it
12 in the first year ethics course. Because the
13 undergraduate students find the TAs less
14 intimidating than faculty, being closer to them in
15 age, they will sometimes raise problems that are
16 outside the classroom. I encourage the TAs to
17 inform me or to inform college advisors if they
18 have any concern about the well-being of the
19 student and beyond that to use their good judgment
20 in giving advice but not to feel that it's their
21 role to look after the undergraduate students but
22 rather to solicit help from more senior experienced
23 people if they see a significant problem.
24 Q. For whose benefit do you teach your TAs
25 how to handle office hours?

Page 622

1 A. It's for the benefit of the TAs. I want
2 them to feel empowered and capable of knowing how
3 to deal with any problems that may arise.
4 Q. Lastly, Dr. Prince, you mentioned that
5 in your courses with your TAs they lecture one or
6 two classes?
7 A. Yes.
8 Q. Tell us how you teach them how to
9 lecture one or two classes?
10 A. The primary methodology is to listen to
11 the TA do a practice run of the lecture, having
12 previously evaluated the presentations, the slides
13 that they plan to show, ensuring that there's both
14 a suitable number of slides, not too much content,
15 not too little content and the type of content is
16 appropriate. But during a practice I would give a
17 great deal of feedback, typically on ensuring
18 clarity. I would then sit in on the lecture as
19 they deliver it to the students. By that point I
20 would hope the TA is very well prepared based on
21 our previous practicing, but I would still give
22 them additional feedback at the end of the lecture
23 on how I thought it went and how they might be able
24 to improve in a subsequent lecture.
25 Q. What, if anything, do you teach them

Page 623

1 about pace?
2 A. Pacing is quite difficult. Often
3 nervous people tend to speak very quickly so that
4 will come out during practices. I try and
5 encourage them to take the opportunity to ask the
6 class if they're following, to give a break for the
7 students to ask questions so they don't end up
8 going too rapidly. The number of slides will also
9 help determine the pace. Often the students try
10 and show far too much information in the given time
11 frame.
12 Q. What, if anything, do you tell them
13 about detailed lecturing?
14 A. So, again, similar to examining the
15 students, I encourage them to focus on the broad
16 first principles of the topic supported by detail
17 rather than solely focus on small details of the
18 field.
19 Q. You tell them what problem results from
20 too much detail?
21 A. Well, students certainly get overloaded
22 with information and tend to get lost if the pacing
23 and degree of detail are inappropriate.
24 Q. Does your mentoring of the students who
25 will lecture one or two of your classes also cover

Page 624

1 how to engage students during the course of
2 teaching?
3 A. Yes, but this is fairly similar to what
4 they would also be doing in discussion groups. So,
5 again, I would encourage them to break up the
6 lecture by asking questions of the class and
7 dependent on the nature of the group of students,
8 which varies from class to class and year to year,
9 to use the kind of pairing device that I described
10 earlier if a particular class is quiet and not
11 comfortable speaking out.
12 Q. What do you teach them about their
13 demeanor in the classroom?
14 A. Again, similar to discussion sessions,
15 but it's particularly important in a large lecture
16 setting to look out at the class, to not spend your
17 time staring at the slides, to obviously speak
18 clearly, to point directly at the piece of data or
19 information on the slide that you wish the student
20 to focus on, essentially to give the impression
21 that you are confident in the information that you
22 are delivering to the class.
23 Q. Do you ever have to have awkward
24 conversations about certain annoying habits they
25 may have as lecturers?

Page 625

1 A. Yes. A lot of people have a tendency to
2 fill gaps by saying um, for example, or to have
3 certain nervous tics, to scratch their head, to
4 constantly drink water, things that they're
5 completely unaware of, typically, that I can point
6 out to them. This is also extremely useful for
7 when they present data in a research seminar.
8 Whatever issues they're having as they stand up and
9 talk to a class will also be similar issues as they
10 present their research. So this is a very
11 important training exercise.
12 Q. For whose benefit do you provide all
13 that teaching with respect to the one or two
14 lectures that they'll handle in one of your
15 classes?
16 A. This is to the benefit of the student TA
17 who is learning not only to teach a class but to be
18 an effective communicator in other settings.
19 Q. You testified earlier that BSD students
20 do not teach an entire undergraduate course. Who
21 teaches the undergraduate courses?
22 A. The undergraduate courses are primarily
23 taught by tenure track faculty members, but the
24 biological sciences collegiate division also has
25 PhD-level lecturers who particularly deliver

Page 626

1 content in the core courses to non-majors and play
2 a role in delivering the laboratory exercises to
3 biological majors.
4 Q. Those are not your graduates?
5 A. Those are employees of the university,
6 PhD-level lecturers.
7 Q. In addition to everything that you've
8 told us about, does BSD do anything else to make
9 their PhD students better teachers when they
10 graduate? Any other courses or training that you
11 can think of?
12 A. We offer pedagogy courses, which the
13 students have requested, to enable them to acquire
14 more upper level inquiry around the topic of
15 teaching, being particularly useful classes for
16 those students who wish to go on to careers with a
17 high teaching load, for example, in liberal arts
18 colleges. And those -- currently those courses are
19 taught as a collaboration between BSD faculty and
20 the Chicago Center for Teaching.
21 Q. Looking at the demonstrative, can you
22 tell us the typical schedule for filling the TA
23 requirement by PhD students in BSD?
24 A. As you can see, it varies unit by unit.
25 Very rarely would a student be a teaching assistant

Page 627

1 in their first year.
2 Q. Why not?
3 A. Because in general the students have not
4 gained the experience of going through graduate
5 classes and observing the teaching methodology of
6 University of Chicago faculty and are therefore
7 less prepared than the more senior students.
8 In addition, many of the programs
9 feel that it's very important to the student's
10 development to focus primarily on their research in
11 the early years in the program which is why several
12 programs, as listed here, have determined that a
13 student should not begin the TA experience until
14 their third year of studies.
15 Q. Are PhD students in BSD compensated for
16 completing the requirements that appear on the
17 demonstrative?
18 A. No.
19 Q. Does BSD have a policy covering when
20 students can get paid to be a TA?
21 A. Yes.
22 Q. When is that?
23 A. Only after students have met their
24 divisional requirements can they be paid to perform
25 additional TA duties.

Page 628

1 Q. So let's look back at Exhibit 28, the
2 last exhibit I gave you. Would you point out to
3 the reader of the record where the exhibit contains
4 a discussion about how PhD students in the BDS
5 division can earn money for being a TA after they
6 fulfill their requirements?
7 A. On Page 6 of 8 towards the bottom in the
8 essay tiers, the question is: "May I teach your TA
9 for pay?" And that outlines the policy that I just
10 mentioned pointing out that it's important for TAs
11 to -- for students to consider whether they ought
12 to TA given the time that it may detract from their
13 research. We recommend they consult with a faculty
14 advisor thesis committee before deciding to TA for
15 pay.
16 Q. Why do you have a policy that allows TAs
17 to teach -- excuse me. I'm going to start that
18 over.
19 Why do you have a policy that
20 allows PhD students to TA for money after they
21 complete their requirement?
22 A. A subset of our students desire
23 decisional preparation for a career that will have
24 a heavy teaching component or just enjoy teaching a
25 great deal, and so we provide that opportunity for

1 them to gain additional experience by allowing them
2 to TA for pay only after they've met the divisional
3 requirements.

4 Q. It's purely voluntary?

5 A. Yes.

6 Q. And when a BSD PhD student teaches
7 beyond a requirement for money, is that also just
8 TA, or would it include full course lecturing?

9 A. It never includes full course lecturing.
10 It's just a TA.

11 Q. Is there a difference between how you
12 treat a PhD student who is one of your TAs as part
13 of the requirements and how you would treat a TA
14 who is volunteering to be a TA to get additional
15 experience?

16 A. Yes.

17 Q. What are the differences?

18 A. The TA who has completed the divisional
19 requirements will be significantly more experienced
20 and therefore require less mentoring than a TA who
21 is meeting the divisional requirement.

22 MR. WEITZMAN: May we take a short
23 break, please?

24 THE HEARING OFFICER: Absolutely. Off
25 the record.

1 (Whereupon, a break was taken,
2 after which the following
3 proceedings were had:)

4 THE HEARING OFFICER: On the record.
5 BY MR. WEITZMAN:

6 Q. Dr. Prince, I'd now like to talk to you
7 about how BSD handles the matching of PhD students
8 to the teaching assistant opportunity.

9 Are you familiar with how that
10 happens?

11 A. Yes.

12 Q. So tell us what the process is?

13 A. Students, on occasion, reach out to
14 faculty asking if they may TA in their course.
15 Faculty, on occasion, reach out to students
16 inviting them to TA in their course. Students are
17 also encouraged to discuss with their graduate
18 programs, particularly the administrative staff or
19 the first-year advisory committee the programs
20 provide, about what classes may be available and
21 what would be most suitable relevant to their
22 research interest.

23 Q. They can also find out where the
24 TA-ships are available on the website?

25 A. The Rosalind online resources. Many

1 TA-ships are filled through word of mouth.

2 Q. Does a PhD student have the right to say
3 no when the faculty says would you like to TA for
4 me?

5 A. They do say no.

6 Q. Is it fair to say in all instances the
7 PhD students in BSD chooses whether they want to be
8 a TA?

9 A. Yes.

10 Q. No exception?

11 A. They may not be able to TA the class of
12 their first choice because a different student was
13 already selected, but they are not assigned to a
14 course. They choose the course they wish to TA.

15 Q. So you have a TA and the question is
16 what happens if a TA's performance is poor and it's
17 called less than satisfactory?

18 A. If, as an instructor, I feel my TA is
19 performing poorly, I would mentor them to improve.

20 Q. Does that happen often?

21 A. Not very often.

22 Q. Very rarely?

23 A. I'm the instructor of record on the TA
24 program so I evaluate all of the evaluations
25 through the program. I see very few poorly

1 performing TAs across the entire division.

2 Q. What would happen if after additional
3 counseling the TA's performance does not improve?

4 A. More counselling would continue during
5 the duration of the course.

6 Q. Would he or she be removed as a TA
7 during the course of the quarter?

8 A. No.

9 Q. Can a student lose his or her stipend
10 based on his or her performance as a TA?

11 A. No.

12 Q. Why not?

13 A. A stipend is not related to the TA
14 requirement. The stipend fellowship is support for
15 the graduate school experience.

16 Q. In your experience has a TA ever failed
17 TA?

18 A. I have failed one TA in the -- in my
19 role as instructor of record on TA training
20 experience.

21 Q. That one out of how many?

22 A. About 90 a year over the years since
23 2010. Nearly seven years. Maybe 60 students.

24 Q. One out of 600. When that student
25 failed, did that affect his stipend?

Page 633

1 A. No.
2 Q. What do you have to do to fail?
3 A. I wouldn't say this particular student
4 had poor performance. He really had
5 nonperformance. The students who evaluate the
6 class students, in their evaluation, stated that he
7 had been of no help to them, and the instructor
8 reported that he had largely slept through all of
9 her lectures.
10 Q. So after the student failed TA, what
11 happened next?
12 A. I met with the student and the course
13 instructor to confirm that what I had read in the
14 evaluations was accurate. The student admitted
15 that he had not taken this TA requirement at all
16 seriously. We decided he would take the TA
17 training course to enable them to develop more
18 appropriate teaching skills and then repeat the TA
19 requirement that he had failed. He went on to do
20 that. He performed very well. He graduated. All
21 was well.
22 Q. So he failed and then completed the
23 two-course requirement, once by the course?
24 A. Yes.
25 Q. And once by being a TA?

Page 634

1 A. Yes. He was essentially a TA a second
2 time to give him another opportunity to pass the
3 requirement, which he did.
4 Q. You testified that you see evaluations?
5 A. Yes.
6 MR. WEITZMAN: May I?
7 THE HEARING OFFICER: Yes.
8 BY MR. WEITZMAN:
9 Q. So to save time I'm going to give you
10 several. 29, 30, 31. This will be 32.
11 (Employer No. 29, 30, 31, and
12 32 were marked.)
13 Dr. Prince, let me direct your
14 attention to Employer Exhibit 29. Do you recognize
15 this document?
16 A. I do.
17 Q. What is it?
18 A. It's the teaching assistant student
19 evaluation.
20 Q. So is that what it sounds like? This is
21 how a student evaluates your TA?
22 A. This is how the students who take the
23 class are requested to evaluate the TA.
24 Q. Do they fill this in at the end of the
25 quarter?

Page 635

1 A. It happens after the class is completed,
2 and we collect these in my office.
3 Q. Do you review them?
4 A. I do.
5 Q. That's part of your job?
6 A. It is.
7 Q. Let me direct your attention to
8 Exhibit 30 titled "Autumn 2016 Teaching
9 Self-Evaluation." What is that?
10 A. This form allows the TA to evaluate
11 their own performance as well as give some
12 confirming information about the activities that
13 they engaged in while a TA.
14 Q. The TA fills this out?
15 A. Yes.
16 Q. And submits it to your office?
17 A. Yes.
18 Q. Do you review these?
19 A. I do.
20 Q. What is Employer Exhibit 31?
21 A. This is a form that enables the course
22 director of the class to evaluate the TA's
23 performance.
24 Q. Done online?
25 A. Yes.

Page 636

1 Q. And you review these?
2 A. Yes. I look at all three together for
3 each individual student.
4 MR. WEITZMAN: I move the admission of
5 Employer Exhibits 29, 30 and 31.
6 MS. AUERBACH: No objection.
7 THE HEARING OFFICER: Employer
8 Exhibits 29, 30 and 31 are received.
9 BY MR. WEITZMAN:
10 Q. Can you give us some examples of where
11 your review of these forms has led to your helping
12 a TA become a better TA?
13 A. Where I see a consistent pattern of
14 comment from students who have -- in addition to
15 these bullet points that they can fill in, there
16 are free fields in this form where they can make
17 comments. If I see what I view as a problematic
18 series of comments, for example, students
19 complaining that a TA is arrogant, condescending,
20 belittles them, then I use that information to
21 speak either to the course instructor or, in some
22 cases, directly to the TA to -- in either mode to
23 make sure the student receives feedback that this
24 is inappropriate. They also see their own
25 evaluations and learn from them.

1 Q. And, lastly, please, tell the reader of
 2 the record what Exhibit 32 is.
 3 A. 32 is a form which is completed very
 4 early in the quarter, just before the TA begins the
 5 experience, that provides information on which
 6 course they are TA-ing in so that we can ensure
 7 that we keep appropriate records and evaluate
 8 appropriately.
 9 In addition, it outlines the duties
 10 that the TA would fulfill to qualify the course for
 11 fulfilling the TA requirements, and that means a
 12 substantial element of actually interacting with
 13 the student in a meaningful way.
 14 MR. WEITZMAN: We move the admission of
 15 Employer Exhibit 32.
 16 MS. AUERBACH: No objection.
 17 THE HEARING OFFICER: Employer
 18 Exhibit 32 is received.
 19 BY MR. WEITZMAN:
 20 Q. Dr. Prince, we're about to leave the
 21 classroom world and move into the laboratory. Are
 22 you ready?
 23 A. Yes.
 24 Q. BSD students do research in laboratories
 25 at the University of Chicago, correct?

1 A. Correct.
 2 Q. Is every PhD student who is admitted to
 3 study at BDS required to conduct research?
 4 A. The conducting and completion of
 5 research is a central requirement of gaining a PhD,
 6 so yes.
 7 Q. Why is that?
 8 A. The whole goal of gaining a PhD is to
 9 train the students to become independent research
 10 scientists.
 11 Q. What are students who conduct research
 12 in the BSD laboratories called?
 13 A. Students.
 14 Q. How do the BSD students fulfill their
 15 research requirements?
 16 A. Could you break that down?
 17 Q. Sure. In what venues do BSD fulfill
 18 research requirements?
 19 A. Most of our students perform their
 20 research in the lab of their research advisor, but
 21 some projects require the students to do field work
 22 off-site or to work in the laboratories of
 23 colleagues on campus, or even beyond campus through
 24 collaboration. Some of our students spend some
 25 time off-site conducting their research elsewhere.

1 While all of the students do research, it may not
 2 always be wet-lab based. On occasion it's more
 3 computationally-based, what we would call in silico
 4 research.
 5 THE HEARING OFFICER: Can you explain
 6 what you mean by wet lab?
 7 BY THE WITNESS:
 8 A. Wet lab would involve being at a
 9 traditional laboratory bench doing the kind of
 10 experiments that involve moving physical reagents
 11 around.
 12 THE HEARING OFFICER: Thank you.
 13 BY MR. WEITZMAN:
 14 Q. What is the formal title of the faculty
 15 member at a lab?
 16 A. We typically refer to them either as the
 17 PI, the principal investigator, or the research
 18 advisor of the student.
 19 Q. What does it mean to be one's research
 20 advisor?
 21 A. That is the primary mentor of the
 22 student who guides the dissertation research.
 23 Q. What role does the PI or research
 24 advisor play with respect to students in the lab to
 25 assure that they are trained and mentored to

1 ultimately become research scientists?
 2 A. So that role involves multiple
 3 components.
 4 Q. So why don't you tell me what the
 5 components are and then we'll come back and talk
 6 about them in detail after you tell me what's on
 7 your mind.
 8 A. One is to meet regularly with the
 9 student to mentor them in developing a research
 10 program.
 11 Q. One-on-one?
 12 A. Yes. Another is to mentor the student
 13 in written work which early in the training
 14 experience focuses on producing a written
 15 dissertation proposal, but there will be other
 16 components later culminating in the dissertation
 17 thesis.
 18 Q. That's two. Are there more?
 19 A. The mentorship directly in the
 20 laboratory setting training the student on how to
 21 perform experiments or how to use particular pieces
 22 of equipment in the lab.
 23 There's also very important
 24 training in communication skills. Often this is
 25 done in the setting of group meetings where the

Page 641

1 mentor trains the student how to present their
2 research orally to a broad audience. A key role of
3 the mentor is to ensure adequate resources are
4 available in the laboratory for the student to be
5 able to perform their research.
6 And, finally, a regular day-to-day
7 role of the research advisor is to help the student
8 develop troubleshooting skills to be able to ensure
9 that the experiments that they're finding
10 challenging, that they can work out how to make
11 those work better.
12 Q. So I've counted six different ways that
13 the PI trains and mentors the students in the labs
14 so they can become research scientists. I want you
15 to talk about them in more detail, and I'll give
16 them to you one at a time.
17 So first, with respect to the
18 discussion that you described, the ones-on-ones,
19 when do they take place? How often? What's the
20 goal? Tell me all about them.
21 A. Different faculty have different
22 mentoring styles, but I elect to meet formally with
23 each one of my students weekly in addition to
24 multiple informal short interactions, but in our
25 weekly meeting we are considering the most

Page 642

1 appropriate experimental plan and how this will
2 reflect the hypothesis we wish to test and the
3 overarching goals of the project.
4 For early stage students a great
5 deal of this is related towards putting together an
6 appropriate dissertation proposal which will be
7 evaluated by the student thesis committee allowing
8 them to admit to candidacy. But these meetings
9 will continue throughout the student's time in
10 training in my lab.
11 At later stages we will often
12 evaluate how we can craft manuscripts for
13 submission to a journal. Which pieces are they to
14 include, which experiments need to be built upon,
15 when more data has to be gathered in order to reach
16 publication.
17 We will also be discussing what
18 conferences the student should attend and which
19 particular data they should present at those
20 conferences. And toward the end of the student's
21 time in my lab, we will be discussing how to craft
22 the final dissertation document. Throughout that
23 time I encourage my student to think about the
24 longer term career and broader professional
25 development.

Page 643

1 Q. That's interesting. What do you talk to
2 them about professional development in their
3 career? What they need to do to enhance that?
4 A. I encourage students to view career
5 preparation as a process, not something that should
6 happen only towards the end of their thesis work.
7 Graduates in biological sciences have a wide range
8 of career opportunities, not only academic careers.
9 One of my other roles is as
10 co-director of a career development and
11 professional development program that we call
12 myChoice: Chicago Options in Career Empowerment.
13 Our main goal is to expose students. So I
14 encourage students to take advantage of those
15 opportunities and career advising as well as to use
16 me as an opportunity to develop a broader network
17 within academia and the research community. I like
18 them to be thinking about the longterm goals from
19 early in their graduate training so that I could
20 help them realize those goals.
21 Q. Have you now exhausted everything that
22 you can remember about the kinds of things that you
23 covered on one-on-one?
24 A. I've covered most of it.
25 Q. How about developing good scientific

Page 644

1 questions?
2 A. So a key component of research training
3 which happens not just in one-on-one meetings but
4 throughout lab meetings in the lab as well is the
5 need to develop the skill to be able to recognize
6 appropriate testable hypothesis. These are small
7 bite-size questions that can be experimentally
8 addressed to build a logical argument regarding
9 whatever the research topic at hand is. So we
10 really feel it's key to train all our students to
11 develop testable hypothesis and to develop
12 experimental plans that enable that. That is also
13 a large component of the dissertation proposal, but
14 it continues beyond that, because although the
15 proposal is a road map to their research given that
16 they will be doing research for several years,
17 there will be changes over time that require a
18 reevaluation.
19 For example, new experimental
20 techniques may become available. Other groups may
21 publish related work, change the way we think about
22 the research question. A research line of inquiry
23 that we felt would be productive may prove not to
24 be. And that's why we're constantly reevaluating
25 precisely what direction to take a research project

Page 645

1 in.

2 Q. Is everything that you just described

3 something that has really happened or are you

4 talking things that hypothetically --

5 A. They've already happened.

6 Q. For FERPA reasons I'm not going to ask

7 you about specific discussions with students. I'll

8 move on to the next subject which you described as

9 helping the student to put their goals in writing.

10 A. Right. Written work is a key means of

11 communication and science. Professional scientists

12 write primary research papers and review articles,

13 book chapters on occasion, and very importantly,

14 grant proposals to secure funding for their

15 research. Having strong written skills is

16 absolutely key to the future success as an academic

17 but is also a very important transferable skill.

18 I, therefore, think it's extremely important that I

19 share my knowledge and experience with my students

20 to help them to develop better written skills.

21 Q. To be specific?

22 A. Involves drafts of dissertation

23 proposals or fellowship proposals or manuscripts

24 that they will give to me. I will edit. I will

25 then meet with them to talk about why I suggested

Page 646

1 specific changes or why I have asked them to flesh

2 out a particular paragraph to find a different

3 citation to support the statement that they've

4 made. This is a reiterative process. In my

5 experience all students improve greatly in their

6 ability to write in the format that is expected by

7 professional scientists which is quite formulaic.

8 Q. It's call a scientific one?

9 A. That's my shorthand, yeah.

10 Q. You discuss issues with clarity in their

11 work?

12 A. Absolutely. Not only is it important to

13 write clearly for the sake of the reader, but in

14 fact, a clearly stated scientific question is very

15 important for the individual researcher. You

16 cannot fully evaluate whether your experiments are

17 going to answer your question until your question

18 is 100 percent clear to you as well as the reader.

19 Q. You discuss organization in the written

20 document?

21 A. Right. Fellowship proposals depending

22 on the agency, but for the most part, follow a

23 similar format to grant proposals and therefore we

24 require dissertation proposals to follow that

25 format. It involves initially laying out a series

Page 647

1 of what we call specific aims. This is usually two

2 or three significant questions that fall within the

3 overarching larger question that guides the

4 research proposal or fellowship proposal. Each aim

5 is then broken down into a series of experimental

6 questions with an outline of the precise

7 experiments that will address the questions. The

8 logical flow of that will be evaluated by the

9 review of the proposal in addition to its

10 creativity, innovation, impact on the field.

11 Q. In addition to the dissertation, are

12 there other written documents that PhD students are

13 involved with?

14 A. Yes.

15 Q. That are covered during your discussion

16 with them about their writing?

17 A. Yes. And different documents will be

18 written at different stages. We encourage our

19 students to submit fellowship proposals, so they

20 will be writing up documents in a similar format to

21 what I just suggested. We encourage our students

22 to present their data at conferences as part of

23 their professional development, and that relies

24 upon them submitting abstracts to the meeting which

25 are often used as a selection mechanism for whether

Page 648

1 the student will be allowed to give a talk, an oral

2 presentation at the meeting. So a very good

3 abstract is more likely to be selected.

4 When students have sufficient data

5 to write up a manuscript for publication, I will be

6 mentoring them through that process. And writing

7 the first scientific manuscript is something most

8 students find very challenging. It's a large piece

9 of work with many different expectations, that is

10 absolutely key to be mentored through that process

11 in order to do an effective job, which it will

12 enable the work to ultimately become published and

13 thus build a CV of the student.

14 Q. It sounds intensive.

15 A. It is.

16 Q. What about chapters?

17 A. So in many of our programs, the

18 published or submitted manuscripts are similar to

19 the thesis chapters, so work on manuscripts often

20 goes hand in hand with producing a chapter of the

21 thesis. Every thesis also has a scholarly

22 introduction which is a deep dive into the

23 background of the field, and when the student

24 writes that, of course, I'm mentoring them in that

25 process, too. Every thesis is concluded with a

1 discussion chapter which seeks to place the work
2 that the student has performed in the context of
3 the broader lecturer while also suggesting future
4 directions to study. It's probably the place where
5 a student has the most leeway to be creative. I
6 feel my role there is to -- for clarity rather than
7 to alter content. But, again, I would mentor them
8 through the process of producing each of these
9 chapters of their thesis.

10 Q. For whose benefit do you mentor and
11 train your PhD students with respect to writing?

12 A. This is for the benefit of the students.
13 Whether or not they stay in academic career,
14 writing is a key skill which can be used in, at or
15 beyond academia.

16 Q. I apologize. I forgot to ask you the
17 same question with respect to the one-on-one
18 meetings that you described just a few moments ago.
19 For whose benefit do you conduct those one-on-ones?

20 A. Those meetings are designed to help the
21 student to perform the best possible research they
22 can to develop their skills and abilities as an
23 independent researcher. The research that the
24 students do in the lab is part of a broader lab
25 team activity. So in addition to benefitting the

1 guide you through the use of these pieces of
2 equipment.

3 Q. For whose benefit do you train and
4 mentor your PhD students with respect so that they
5 can become scientists?

6 A. This is developing the skills of the
7 student such that they are empowered to go on to be
8 an independent research scientist which could be in
9 an academic or industry setting. Although some of
10 our students will use their scientific training in
11 other science-related avenues post graduation.

12 Q. My shorthand version of what you
13 described as feedback on oral presentations is
14 feedback on all oral presentations?

15 A. Yes.

16 Q. Tell us in detail how you mentor and
17 train your PhD students so that they become
18 scientists in the future with respect to feedback
19 on oral presentations?

20 A. My lab has regular group meetings
21 weekly, every other week, with another lab working
22 on a similar topic. We often use the group meeting
23 as a venue to either have the -- an individual
24 student report on an update on their research which
25 is relatively informal but also to practice more

1 student, the team as a whole is benefitted.

2 Q. The third topic that you mentioned in my
3 shorthand version is training on lab equipment.

4 A. Right.

5 Q. Tell me how you train and mentor PhD
6 students so that they are properly trained so they
7 can become scientists of the future?

8 A. My laboratory does developmental
9 biology. We study how very small embryos, as a
10 zebrafish, which is a model system with some common
11 features with humans, as to how those embryos
12 develop. Each embryo is less than half a
13 millimeter across. Much of the research we do
14 involves very fine manipulations with dissection
15 tools and use of complicated microscopy equipment.
16 I sit with students in our microscope room and show
17 them how I do these fine dissections and other
18 experiments such as microinjection of cells or
19 transplantation of cells from one specimen to
20 another. These require a certain measure of
21 dexterity. People improve with practice, but it's
22 almost impossible to learn to do these techniques
23 without an expert showing you how to do them. The
24 same is true for the use of our high-end microscopy
25 equipment, that it's key to have experienced people

1 formal talks that they're going to give at, for
2 example, a research in progress session on campus
3 or at a retreat off campus or, potentially, a
4 national conference with more senior students. I,
5 therefore, ask my students to do a practice talk in
6 that setting. The entire group is there to give
7 feedback to the students. The group also gets to
8 hear the specific issues that I may critique and
9 ask a student to change. It may be the format of
10 the slides. It's often the organization of the
11 talk as a whole. It can be elements on how they
12 precisely explain a complex topic within the talk.
13 Also, the kind of activities we've talked about
14 earlier such as looking out to the audience,
15 pointing directly to the piece of data they want to
16 show.

17 So we go through these practices to
18 ensure that when students go out and talk to the
19 world at large, that they feel very prepared and,
20 more importantly, are able to convey the research
21 that we do and explain it effectively to the world
22 so that it is well understood.

23 My belief is there's no point in
24 doing research if we don't disseminate that
25 research either in oral communication or through

1 publication.
 2 Q. For whose benefit do you provide this
 3 training?
 4 A. This is to the student's benefit.
 5 Again, it's a skill that is absolutely key to any
 6 professional scientist, but it's also a
 7 transferable skill that is very useful in a range
 8 of other careers.
 9 Q. The fifth way that I heard you mention
 10 is the maintenance of the laboratory environment?
 11 A. Yes.
 12 Q. Tell me about that, please.
 13 A. A lot of the experimentation we do is
 14 quite expensive. We have to purchase reagents or
 15 cover the cost of using core facilities on campus
 16 such as the high-end imaging facility or the
 17 sequencing facility. Therefore, it's my role to
 18 bring resources in the form of either external
 19 grant funding from various agencies, including NIH
 20 or NSF, or internal funding from the division into
 21 my laboratory to ensure that my students can
 22 continue to do their experiments and further their
 23 education.
 24 THE HEARING OFFICER: Can you just state
 25 for the record what are NIH and NSF?

1 For whose benefit do you maintain
 2 the environment that you just described in your
 3 lab?
 4 A. It's for the benefit of the entire team,
 5 but a really important part of that is to provide
 6 very strong training opportunity for the graduate
 7 students.
 8 Q. The sixth and last area that you
 9 mentioned was publishing. How does that work?
 10 A. The experimentation that we do in a
 11 research lab is often very challenging. When not
 12 just repeating the same approaches at multiple
 13 times, we're always attempting new experiments that
 14 may involve modification of published protocols or
 15 protocols we've used ourselves. This typically
 16 involves a fairly high failure rate and that would
 17 be true for any researcher, including me, but
 18 because I have more experience as a researcher I'm
 19 able to help my students think logically through a
 20 troubleshooting process where we consider
 21 step-by-step in a protocol the most likely places
 22 that a problem may have arisen that leads to an
 23 experimental failure.
 24 I want to teach them to be able to
 25 perform that troubleshooting experience

1 BY THE WITNESS:
 2 A. NIH is the National Institute of Health.
 3 It's an agency that funds biomedically-related
 4 research. NSF is the National Science Foundation.
 5 It's an agency that funds what we term basic
 6 research, research into fundamental scientific
 7 topics that are of benefit to society.
 8 THE HEARING OFFICER: Thank you.
 9 BY MR. WEITZMAN:
 10 Q. So if I understood what you just said,
 11 you take time out of your own research to apply for
 12 grants, to get money so that your PhD students have
 13 the equipment necessary to do their research?
 14 A. It's primarily the reagents necessary,
 15 the renewable resources, that are expensive. Yes,
 16 I spend significant time writing grant proposals to
 17 attract resources into the laboratory to enable the
 18 research to continue.
 19 Q. Do you also arrange for technical
 20 support in the lab?
 21 A. Another reason that I need to bring
 22 these resources into the lab is to pay the salary
 23 of the staff members who provide technical support.
 24 Q. We'll talk about them a little bit more
 25 later.

1 independently in the longterm so that they can be
 2 effective researchers when they leave the lab and
 3 continue their career.
 4 Q. So when something is not working?
 5 A. Yes.
 6 Q. How do you teach them to deal with that
 7 situation?
 8 A. We sit down and look, typically, at
 9 their laboratory notebook and the protocol that
 10 they're using and think about each individual set
 11 and look at data that is produced at those
 12 individual sets. In many cases we go through step
 13 protocols that have an output at different stages.
 14 I evaluate that output with them. We try to
 15 determine at which step in the process a problem
 16 has arisen and then, using my experience of where
 17 problems most typically arise, I can suggest to
 18 them changes to make in the protocol, in the
 19 approach, the next time they go through this
 20 experimental process to get them further through
 21 the experimentation, ideally to a satisfactory
 22 conclusion. But anybody who does research knows
 23 that there is typically a high failure rate of
 24 experiments that are completely normal.
 25 Q. And in the Prince lab, the research you

1 do is novel, correct?
 2 A. Yes.
 3 Q. What does doing novel research do to the
 4 degree of failures?
 5 A. It certainly elevates the degree of
 6 failures because we're not repeating the same
 7 experimental paradigm. We may use related
 8 approaches, but we will be, by the nature of the
 9 research, changing elements of what we do and
 10 therefore, the rate of failure is elevated.
 11 Q. And for whose benefit do you
 12 troubleshoot and help the PhD students learn how to
 13 evaluate failure?
 14 A. This is a key component of developing
 15 the ability to be an independent researcher. My
 16 hope is that my students will take this knowledge
 17 and build upon it and both perform important
 18 research while they're in my lab but also continue
 19 to do so after they've completed their training.
 20 Q. I want to get into some more details
 21 about how the research advisor interacts with the
 22 student in their dissertation?
 23 A. The beginning point of that interaction
 24 may be done when the student is rotating through
 25 the lab and considering which lab they want to join

1 have you describe the process by which somebody
 2 applies to the University of Chicago and ultimately
 3 winds up in your lab. Tell me how the admission
 4 process works that would get the students into your
 5 lab eventually.
 6 A. Students apply to the biological
 7 sciences division programs and they are asked on
 8 their application form to select up to three
 9 programs in ranked order. They, of course, select
 10 the program that they feel best fits their
 11 intellectual interests. There is some overlap in
 12 the topics that our programs cover and that's part
 13 of the reason we allow them to select up to three
 14 programs.
 15 The applications are then evaluated
 16 by groups of faculty and a subset of applicants are
 17 invited to come to campus for a several-day-long
 18 interview process as part of a group of students.
 19 Each student will interview with typically at least
 20 five individual faculty who have been selected
 21 based on the interests that they described in the
 22 personal statement on their application.
 23 They will also have opportunities
 24 to interact with broader groups of faculty and with
 25 current students in a variety of settings such as

1 or may come after the student has already selected
 2 a lab, but it's still seeking a defined research
 3 topic.
 4 There are multiple ways that the
 5 dissertation topics are selected, but often a
 6 faculty member will have an array of ideas for
 7 topics that they present to the student. Although
 8 in some cases the student will come with their own
 9 previously defined idea.
 10 In either case, through
 11 conversation and through doing pilot experiments to
 12 determine whether this is a direction that is
 13 likely to be productive, the details of the
 14 dissertation topic are gradually arrived at over a
 15 period of multiple months and then solidify through
 16 the writing of the dissertation proposal.
 17 As I mentioned previously, the
 18 dissertation proposal is designed to be a road map
 19 to the research that the student will complete.
 20 However, the road map will get updates as the
 21 picture changes with new findings coming in to play
 22 over the time of the research.
 23 Q. Dr. Prince, given your role in the
 24 development of PhD dissertation topics for students
 25 who wind up in your lab, I'd like to go back and

1 post sessions where current students show their
 2 ongoing research, also social settings.
 3 There are orientations given to the
 4 visiting students during their visit to explain to
 5 them the benefits of education and education
 6 philosophy, as well as details about how the
 7 programs work.
 8 From that subset of interviewees,
 9 the faculty evaluates the interviewees and
 10 determine which ones will be given an offer of
 11 admission. That's the process that I oversee. So
 12 the formal offer is made from my office, those
 13 assigned by me and my role as dean of graduate
 14 affairs.
 15 A subset of those students who we
 16 make offers to will then accept the offer of
 17 admission and matriculate into one our programs.
 18 The offer is made to a specific program. Almost
 19 always a program that was top of the list that the
 20 student chose during the application process.
 21 Although occasionally, when we read the personal
 22 statement, we realize that the student might fit
 23 better into a different program, perhaps one lower
 24 on the list that they provided.
 25 Before switching the application

1 into a different program, we would contact the
2 student and confirm they're comfortable with that.
3 So they've always been matriculated into a single
4 program, but it may not necessarily be the program
5 they put at the top of the list when they applied.

6 So when they arrive on campus --

7 Q. Let me stop you for a second. The one
8 thing I didn't hear you mention in the admission
9 process is the lab that they wanted to be placed
10 in. Did you leave that out for a reason?

11 A. We've matched students to programs, not
12 to labs.

13 Q. Why is that?

14 A. Well, because we feel it's most
15 appropriate for students to be on campus and go
16 through research rotations where can get an
17 in-depth experience of the mentoring style of the
18 potential PI and the culture of the lab before a
19 final selection is made.

20 Q. What would you tell a PhD student
21 applying to BSD who says, well, I want to work with
22 a particular professor?

23 A. I would explain to them that that may
24 happen but that there are various reasons why it
25 may not. For example, the lab may be full. The PI

1 again, varies by program, will be discussed, and
2 the student will be encouraged to reach out to the
3 faculty who they may wish to work with to go to the
4 lab to do rotations.

5 But there are also other avenues
6 through which students are given information about
7 the different laboratories and research programs of
8 the faculty. So that includes a series of talks.
9 In one set of programs it's all the All Star
10 Series. It's a typical format of lunchtime talks
11 where faculty who are hoping to recruit students
12 into their lab to train them will come and talk
13 about ongoing research in the lab.

14 Many of the programs also have
15 retreats which are off-campus research
16 opportunities where new students can hear about
17 ongoing research and learn more about what goes on
18 in different labs. This can help them select the
19 appropriate labs to do a rotation in. They've, of
20 course, talked to more senior students and to one
21 another. They've talked to the faculty. They
22 interact with faculty in graduate level classes.

23 All of these are opportunities for
24 students to learn about the ongoing research of
25 different labs. But if they become interested in a

1 may not want to take on an additional students.
2 They may be coming up for retirement. There are a
3 myriad of reasons why they may not take on a
4 student.

5 In addition, the student may go to
6 that lab thinking they'll find it appealing, but
7 when they get there, the interests have changed or
8 they find that the style of the PI doesn't fit with
9 their goal. And so I strongly encourage students
10 to accept offers from a school where they can see
11 at least three people that they could imagine being
12 happy working with even if that means they don't
13 come to us.

14 Q. So you got them on campus?

15 A. Yes.

16 Q. What's next?

17 A. They meet with their graduate program
18 and the graduate programs typically have first-year
19 advisory committees who discuss with the student
20 what courses they should be taking, which,
21 depending on the program may fit with a very
22 defined curriculum or, in some cases, be quite
23 open-ended and the advisory committee will help the
24 student select appropriate courses. That is part
25 of that discussion. The timing of rotations which,

1 rotation in a lab, they would then meet with the PI
2 of that lab, discuss the research, confirm their
3 interests, find out if there is an opportunity to
4 do a rotation and when and at that point decide
5 that they're going to rotate in a given lab.

6 Q. Their decision?

7 A. Yes.

8 Q. And then they rotate?

9 A. Yes.

10 Q. What benefit do they have from visiting
11 and rotating through three different labs?

12 A. The number of rotations differs by
13 student and some are by program, but almost every
14 program requires a minimum of two rotations. Most
15 students do three rotations. Occasionally they do
16 four. There's huge benefit to this both to the
17 student and to the lab as a whole because it
18 enables them to find the best possible fit not only
19 in terms of their intellectual interests and the
20 overall topic of research which is, of course,
21 determined by that particular lab's interest but
22 also to ensure that the lab environment, the
23 culture, the mentoring style of the PI fits well
24 with the student's needs.

25 Q. A student has had a chance to observe

1 the mentoring style of the PI in the labs in which
 2 they rotate?
 3 A. Yes.
 4 Q. And when they pick, you're picking that
 5 mentoring style?
 6 A. That's one of the criteria that students
 7 use to determine which lab to pick. We ensure that
 8 the students have opportunities to hear from more
 9 senior students what are the appropriate things to
 10 look out for during rotations when making those
 11 decisions.
 12 So at the boot camp we run for all
 13 incoming first-year students at the marine
 14 biological labs, one of the sessions we run there
 15 is with the most senior students who come to be TAs
 16 at MBL. They sit down and talk very frankly with
 17 the incoming students about the things to look out
 18 for as you make these decisions.
 19 So we try to get them some PI
 20 mentoring and faculty level mentoring to help them
 21 make the best decision that they can.
 22 Q. What happens at the end of the
 23 rotations?
 24 A. At the end of rotations -- often the
 25 student will give a presentation in a group meeting

1 lab?
 2 A. Yeah. So they've done their other
 3 rotations. And if they have not been able to
 4 identify an appropriate lab, then -- this happens
 5 rarely, but we will allow them to perform an
 6 additional rotation to get them an increased
 7 opportunity to find an appropriate lab.
 8 Q. Ultimately a student is not assigned to
 9 a lab unless that student wants to be in that lab?
 10 A. Correct.
 11 Q. So I take it that means when the student
 12 first picks the University of Chicago and then
 13 picks the -- your division, BSD, and then is
 14 admitted into a particular program and then selects
 15 the lab, that when that student is presenting
 16 research in the lab it's because of that process
 17 that they've chosen. What we shared today with
 18 you, correct?
 19 A. Absolutely. They are following their
 20 intellectual interest and that is absolutely what
 21 we encourage them to do.
 22 THE HEARING OFFICER: Before going to
 23 the next question, how long do lab rotations
 24 typically last?
 25

1 if that's something that the faculty wishes them to
 2 do. There is an evaluation that the faculty member
 3 completes and shares with the graduate program so
 4 that they can track the academic progress of the
 5 student.
 6 There's often a conversation at
 7 that point about whether the faculty member
 8 themselves feels it's a good fit and would like the
 9 student to later join their lab. But depending
 10 where in the process the student is, they may well
 11 be going on to do subsequent rotations before
 12 making any final decision. So that decision always
 13 involves multiple conversations and the guidance of
 14 the graduate program and their advice, as well as
 15 interactions between the student and the potential
 16 PI.
 17 Q. Who decides the lab in which the student
 18 ultimately winds up in?
 19 A. The student decides that. The PI may
 20 determine that they do not wish to accept the
 21 student perhaps because they've already accepted
 22 other students, the lab is full or for other
 23 reasons. The PI is not forced to take in students
 24 that they don't feel is a good fit to their lab.
 25 Q. And that student then selects another

1 BY THE WITNESS:
 2 A. Lab rotations during term time, when
 3 students are also taking classes, last a full term.
 4 We're on a quarter system so those are ten-week
 5 terms. In the summer when students are not taking
 6 classes, the time frame of rotations can be reduced
 7 to as little as five weeks in some instances
 8 because a full-time experience rather than a
 9 part-time experience.
 10 THE HEARING OFFICER: Thank you.
 11 BY MR. WEITZMAN:
 12 Q. By selecting the lab, the student is
 13 also selecting their research advisor?
 14 A. Yes.
 15 Q. For what period of time, in terms of
 16 years, will a student make that lab their home at
 17 the University of Chicago?
 18 A. That will vary by individual student,
 19 but typically at least four years.
 20 Q. What is the role of the research advisor
 21 in helping a student come up with a proposal for
 22 their dissertation?
 23 A. The overarching interest of the research
 24 advisor and the kind of laboratory they run is
 25 going to define the broad parameters of the

1 research proposal. For example, I do zebrafish
2 biology. So if a student wanted to study
3 structural biology, they would not come to my lab.
4 Within the domain of zebrafish biology, I have
5 certain interests which it's likely the student
6 would wish to also pursue because that is why they
7 selected my lab, but on occasion students have
8 shared with me related but different interests
9 which have led to entire new research programs
10 within my lab. These are cases where the students'
11 interest and creatively have helped to drive new
12 research directions which I personally find very
13 exciting.

14 Q. How do you fund research that is not
15 covered by an existing grant when the student comes
16 up with a new brilliant idea?

17 A. Most labs have some funds available
18 which are not tied to a specific project, and many
19 early stage students are being, in part, supported
20 through our federal training grants. Many of which
21 come from NIH. That allows the student a certain
22 latitude in exploring different experimental ideas.
23 Often our students have their own personal
24 fellowships that also allows them latitude.

25 In the past I have written grants

1 to then support the research endeavors that a
2 student has begun in my lab, and that has actually
3 been very successful for my lab.

4 Q. I don't know that I've asked you when
5 the dissertation topic is chosen?

6 A. It's chosen in a process leading up to
7 the point of defense of the dissertation proposal.
8 The division requires, unless there's a petition,
9 for all students to complete the dissertation
10 proposal and the associated admissions candidacy in
11 the autumn quarter of their third year, but for
12 many programs that process happens much more
13 quickly.

14 For example, students in
15 development regeneration and stem cell biology,
16 which all my students are, the program currently
17 requires them to defend their thesis proposal by
18 the January of their second year. So they have
19 defined the topic within about a six-month period
20 of joining the lab, or it could even be a little
21 shorter than that.

22 Again, the topic is not set in
23 stone, but the broad strokes of it will typically
24 be maintained throughout the student dissertation
25 work.

1 MR. WEITZMAN: Thank you. Madam Hearing
2 Officer, may I have another five-minute break?

3 THE HEARING OFFICER: Yes. Off the
4 record.

5 (Whereupon, a break was taken,
6 after which the following
7 proceedings were had:)

8 THE HEARING OFFICER: On the record.

9 BY MR. WEITZMAN:

10 Q. Dr. Prince, what is the focus of the
11 Prince lab?

12 A. My lab studies the developmental biology
13 of vertebra animals using the zebrafish as a model
14 system.

15 Q. How many graduate students are in the
16 Prince lab?

17 A. Currently three.

18 Q. Are there any postdoctoral fellows in
19 the Prince lab?

20 A. Not at the moment.

21 Q. Currently, are there any technicians in
22 the Prince lab?

23 A. Yes. I have one, plus a vacancy that
24 I'm interviewing to fill at the moment.

25 Q. Let's talk about technicians. How are

1 they paid?

2 A. Hourly.

3 Q. Do they punch a time clock?

4 A. They punch the online equivalent to a
5 time clock.

6 Q. Can they be terminated?

7 A. Yes.

8 Q. What role do they have in the lab?

9 A. The primary technical role is support of
10 other lab members, so that involves looking after
11 our zebrafish facility. We have a large number of
12 experimental animals with fish. All our
13 experiments rely on the fish spawning to produce
14 embryos, so maintaining the facility in good health
15 is key to our research mission. The technician
16 also supports the rest of the lab by ordering
17 reagents, ensuring the equipment upkeep is
18 performed and by making up a significant number of
19 basic lab solutions and reagents that other lab
20 members are then able to use.

21 Q. Are there any undergraduates in the
22 Prince lab?

23 A. Yes. I have two seniors who are
24 literally about to graduate who just completed
25 their senior research thesis and handed them in

Page 673

1 last week.
2 Q. You're their advisor for their senior
3 thesis?
4 A. Yes.
5 Q. Let's talk about the PhD students.
6 A. Each of those students is pursuing their
7 own independent research project.
8 Q. In furtherance of their dissertation?
9 A. Yes.
10 Q. How does what the PhD student does in
11 the lab differ from the lab tech does?
12 A. The lab tech is a support role. She
13 does do some small experiments, research
14 experiments, but her primary role is to support the
15 research of those students in the lab.
16 Q. How does what the PhD students do in the
17 lab differ from what the undergraduates do in the
18 lab?
19 A. Given their greater experience, they do
20 more complex, longer term experiments than
21 undergraduate researchers would be expected to do.
22 They also play a much greater role in crafting the
23 direction of the experimentation.
24 Q. You've already told us about the role
25 you fulfill in mentoring the research in your lab

Page 674

1 by PhD students.
2 What is a thesis committee, and
3 what role does the thesis committee play in the
4 mentoring, separate and apart from what you
5 provide?
6 A. So every student in the PhD program has
7 a thesis committee which comprises a minimum of
8 four faculty, one of whom is the research advisor.
9 A different faculty member will be chair of the
10 thesis committee and then two other faculty. The
11 role of the committee is to provide additional
12 mentorship and support of the students and to help
13 guide the research direction. In large part this
14 is done through meetings which happen at least
15 annually, often more frequently. But the thesis
16 committee members additionally meet one-on-one with
17 the student to give the student advice about their
18 project, but potentially also on other topics such
19 as career development.
20 Q. Are the students who do research in the
21 Prince lab provided with ethical training?
22 A. All of our first-year students are
23 required to take a quarter-long course called
24 scientific integrity in research, but we typically
25 just call it the ethics course. I'm a co-director

Page 675

1 on that course. It happens in the spring quarter.
2 In addition to that first-year ethics training,
3 every student goes through senior ethics training
4 in their fourth or fifth year unless they graduate
5 early enough to avoid it. There is also --
6 Q. What is the difference between the first
7 year and the more senior course?
8 A. The more senior course takes into
9 account the real world experience the student has
10 gained, and rather than being run in a huge format
11 of their class it's run in smaller groups that are
12 based on clusters which are combinations between
13 two and five different graduate programs with
14 common interests.
15 The senior ethics is very much
16 discussion based, usually using case studies to
17 invoke the good discussion under the mentorship of
18 the faculty member. The first-year ethics course
19 is taught, in part, through lectures but only a
20 short number. Most of it involves groups of
21 students, between six and eight students, meeting
22 separately to the class with a faculty advisor to
23 explore a particular topic, for example,
24 publications and authorship, the use of stem cells
25 or communication to the public. There's a whole

Page 676

1 range of topics. Use of small animals in the lab.
2 That small group of students will meet with their
3 mentor, discuss the topic and as a group working as
4 a team, they will put together a presentation that
5 they then subsequently will give to the entire
6 class such that everybody in the class will be
7 hearing about all the different topics and
8 discussing all the different topics at the end of
9 that presentation but each small group will really
10 focus in detail on one topic.
11 Q. So in addition to these, I'll call them,
12 more formalized training session settings, what do
13 you do in the lab to further the ethical training
14 of the PhD students who are in your lab?
15 A. So ethics related topics come up on a
16 regular basis. We use animals, so proper ethical
17 use of animals in the lab involves everybody being
18 appropriately trained and compliant with the
19 institutional animal care and use protocol. So I
20 discuss that with my students and monitor how our
21 animals are being treated.
22 Smaller topics come up regularly.
23 For example, if reagents have been published in the
24 literature, it is ethical practice to be willing to
25 share those agents. I would ensure that my

1 students are quick to respond to such requests. I
2 believe that if we are responsive to other labs,
3 they are likely to be responsive to us. We also
4 talk about the ethics of authorship order on papers
5 which is sometimes a difficult topic.

6 I discuss with students the best
7 approach to ensure that in a collaboration
8 everybody fully understands their role in ultimate
9 authorship order. So there are just day-to-day
10 interactions where topics related to training will
11 come up and be covered either in group meeting or
12 in just discussions in the lab.

13 Q. You're being modest. Are you also a
14 role model of ethics?

15 A. I hope to be. That is my goal.

16 Q. Is there a limit on the number of hours
17 students can spend researching in the lab?

18 A. No.

19 Q. Why not?

20 A. The kind of experiments that we do that
21 involve rapidly developing embryos sometimes
22 require the experimenter to be present in the lab
23 late at night or early in the morning. The
24 experiments could not be conducted effectively if
25 the hours were limited.

1 Q. Does anybody track the hours of the PhD
2 students in the lab?

3 A. No. We don't track hours.

4 Q. Is the student's stipend level dependent
5 on the number of hours that he or she spends in the
6 lab?

7 A. It is not.

8 Q. Does a PhD student obtain additional
9 funds as a result of spending more hours in the
10 lab?

11 A. No.

12 Q. Is there any benefit to the students
13 spending more hours in the lab than a fellow
14 student?

15 A. There is. They may through spending
16 more hours, be able to make better progress,
17 publish stronger, more high-impact research and
18 therefore further their own career.

19 Q. Is it fair to say the number of hours
20 that a student researches in your lab is a
21 student's choice?

22 A. Yes.

23 Q. How are graduate students who research
24 in the Prince lab evaluated?

25 A. Students are evaluated by the thesis

1 committee. It is a regular tracking mechanism that
2 the graduate programs are using to ensure that
3 students are continuing to make good academic
4 progress. The chair of the thesis committee
5 produces a write-up that outlines progress as well
6 as future goals and typically a recommended time
7 for the next committee meeting and shares that with
8 the group as a whole, including the student and the
9 graduate program, to enable to the graduate program
10 to track student progress.

11 Q. Do you personally meet with your PhD
12 students in conjunction with the progress?

13 A. At the end of the thesis committee
14 meeting, there's typically group discussion about
15 the expected goals which will then be reiterated in
16 the written document, but we also use that written
17 document. I meet with the student and talk about
18 it. We often refer to it later to ensure that we
19 don't forget some of the good suggestions that have
20 come from thesis committee members, and this can
21 help keep the student on track through the next
22 period until the next meeting.

23 Q. What does it mean to be, quote, making
24 satisfactory academic progress, closed quote?

25 A. When students are progressing through

1 their dissertation research and being productive
2 and moving forward, we would call that making
3 satisfactory progress.

4 Q. So what's unsatisfactory progress?

5 A. On rare occasion students are no longer
6 even attempting to produce data. The nature of
7 unsatisfactory progress can vary case by case, but
8 it would usually involve a loss of motivation by
9 the student and therefore minimal or no progress
10 being made towards the goals of the dissertation.

11 Q. And then what happens to that student?

12 A. The student is placed on academic
13 probation. A probation document is prepared by the
14 graduate program in conjunction with the thesis
15 committee chair, and with input from the research
16 advisor that probation will lay out some expected
17 milestones typically over the next quarter. The
18 document is shared with my office and placed on
19 file in the office of graduate affairs. If the
20 student is unable to comply with the expectations
21 of the probationary document, the program may elect
22 to propose that the student be dismissed from the
23 program. The dismissal would then be evaluated by
24 a standing committee that I have arranged through
25 the office of graduate affairs to evaluate such

1 requests and determine whether they're appropriate
2 before a student is dismissed.

3 Q. This is an academic decision?

4 A. Yes.

5 Q. I'm going to talk to you about what
6 happens when for one reason or another -- we'll
7 talk about all the reasons -- a student wants to
8 change lab. But before I do, I don't want this to
9 get blown out of context. How often does this kind
10 of situation happen?

11 A. An estimate of how many students change
12 lab each year is probably four, around four, maybe
13 five in some years.

14 Q. So we're talking about a very small
15 number out of the 385?

16 A. Yes. Some of those faculty leave the
17 institution.

18 Q. So what are the circumstances -- would
19 you lay them out for us -- that would lead to a
20 student needing to find a new lab or wanting to
21 find a new lab?

22 A. One reason is that the faculty member
23 informs the student that they have decided to move
24 to a new institution. In some cases the student
25 would decide to go with the faculty members,

1 that lab. So that's one reason why a student might
2 move labs.

3 Another is that there has been some
4 breakdown in communication between the student and
5 the mentor which is leaving the student feeling
6 unhappy and dissatisfied with the experience. In
7 which case, again, if it's a very senior student, I
8 would meet with that student and encourage them to
9 think about whether they can fast track their
10 progress and complete their dissertation in that
11 lab rather than trying to move from a situation
12 that's not ideal at a late stage which is likely to
13 significantly extend time to degree.

14 The earlier stage students, if I
15 feel the loss of communication is really
16 significant and unlikely to be resolved, then I
17 would encourage them to use the same process that I
18 just suggested for those whose mentors leave, which
19 is to talk to other faculty about doing a research
20 rotation which would be funded by the division to
21 enable that student to identify a new lab to join.

22 Q. You didn't mention the possibility that
23 a faculty member with a research grant could lose
24 that funding and how that would affect the student
25 who is in that lab?

1 especially a senior student but continue to be
2 mentored long distance by the thesis committee and
3 receive a degree from the University of Chicago.
4 But often, for a variety of reasons, including the
5 personal desire to stay in Chicago, the student
6 would instead elect to move to a different
7 laboratory with a new research advisor. In some
8 cases a senior student can complete the original
9 research project while staying at Chicago with some
10 local mentorship combined with long distance
11 mentorship, but an earlier stage student would find
12 that very difficult and so instead we would
13 encourage them to select a new laboratory and a new
14 research advisor with whom to complete their
15 research and dissertation work.

16 Q. Is that selection process successful?

17 A. Usually. So because the faculty member
18 may be somebody who the student didn't originally
19 rotate with -- for example, new faculty have come
20 to the institution who better fit with the
21 student's intellectual interest. We would allow
22 the student to perform another research rotation
23 while being supported from divisional funds to give
24 both the faculty and the student another
25 opportunity to make a good match before they join

1 A. When we provide the offer of admission
2 to a student, we guarantee five years of full
3 funding support. In practice, we continue to
4 support students up until the point of graduation.
5 So loss of funding by a PI would not be a reason
6 for a student to need to transfer out of that lab.
7 The division will ensure that the student stipend
8 is covered and the departments provide bridge
9 funding to cover the cost of experiments while the
10 PI writes new grants to attempt to resolve the lack
11 of funding.

12 Q. Does BSD have any non-lab research
13 assistants?

14 A. No.

15 Q. Does BSD have any workshop coordinators?

16 A. No.

17 Q. You told us a moment ago about the
18 five-year guarantee. What is included in the
19 five-year guarantee?

20 A. That includes stipend support which is
21 currently \$30,500 a year. It includes full
22 tuition, and it includes healthcare.

23 Q. What's the only condition upon which
24 that guarantee would not be --

25 A. The student must remain in good academic

1 standing.
 2 MR. WEITZMAN: Finished faster than I
 3 thought. I pass the witness.
 4 THE HEARING OFFICER: Do you want to
 5 take a break before cross or are you ready?
 6 MS. AUERBACH: No. I need a break.
 7 THE HEARING OFFICER: Off the record.
 8 (Whereupon, a lunch break was
 9 taken, after which the
 10 following proceedings were
 11 had:)
 12 THE HEARING OFFICER: On the record.
 13 MR. PORZIO: Madam Hearing Officer,
 14 before the cross starts, I'd like to do one thing
 15 on the record quickly. I'm hand delivering to
 16 Union's Counsel and the Hearing Officer a request
 17 for special permission to file briefs in this case
 18 that we'd ask that you and the Regional Director
 19 consider.
 20 THE HEARING OFFICER: Thank you.
 21 Would you like this document to be
 22 entered into the record?
 23 MR. PORZIO: It's up to you.
 24 THE HEARING OFFICER: I'll review it and
 25 then we'll decide before the end of the day today.

1 MS. AUERBACH: For the record, the
 2 Petitioner opposes time to file post-hearing
 3 briefs. Union thinks this case is governed by
 4 settled Board law and there's no need for
 5 post-hearing briefs.
 6 MR. PORZIO: And that's reflected in our
 7 letter.
 8 THE HEARING OFFICER: Thank you.
 9 You may proceed with cross.
 10 CROSS-EXAMINATION
 11 BY MS. AUERBACH:
 12 Q. Dr. Prince, when you were asked to
 13 identify the first web page, Employer Exhibit 27,
 14 you referred to a new web page.
 15 When is the web page new as of?
 16 A. It's about one year old now.
 17 Q. So part of 15 -- it's the document those
 18 blow up charts were taken from. And you identified
 19 teacher requirements for biological sciences
 20 division. If you go to the last page of this
 21 exhibit, footnote two it says that certain graduate
 22 programs in this program are subject to additional
 23 teaching requirements based on their funding
 24 source. What does that mean?
 25 A. This is referring to students in the

1 three programs that we term the "Darwinian Cluster"
 2 which the program is called Committee on
 3 Evolutionary Biology, Ecology and Evolution and
 4 Integrative Biology. These are programs with a
 5 rather different research focus to the others.
 6 They tend to be non-biomedically relevant research
 7 but rather research with strong field components or
 8 funded through the National Science Foundation,
 9 what one could refer to as very basic research.
 10 A subset of the students in those
 11 programs continues to be funded exclusively by
 12 additional resources in terms of coverage of their
 13 stipend fellowship support, as opposed to personal
 14 fellowship support or support that comes through
 15 federal training grants or support that comes from
 16 grants to the PIs.
 17 So this small subset who are funded
 18 through divisional resources are required to
 19 perform one additional teaching assistantship in
 20 each year of support as senior post-candidacy
 21 students but only after they have met the
 22 divisional two-course requirement which typically
 23 happens in years two or three or three and four for
 24 those students.
 25 Q. And so when you talk about divisional

1 funding, that's funding provided by the biology
 2 sciences division?
 3 A. That's correct. We refer to it as
 4 divisional unendowed funding.
 5 Q. And the students who do not have that
 6 additional requirement are being funded other than
 7 by the divisional --
 8 A. They're being funded by one of the
 9 several sources I just mentioned.
 10 THE HEARING OFFICER: Before the next
 11 question, do you know approximately how many
 12 students would fall into that category?
 13 BY THE WITNESS:
 14 A. This quarter we have eight students in
 15 that category.
 16 THE HEARING OFFICER: Thank you.
 17 BY MS. AUERBACH:
 18 Q. And the admission letters that students
 19 who are accepted into the BSD receive, does that
 20 outline the financial package for them?
 21 MR. WEITZMAN: Objection. Best
 22 evidence. We can't ask the witness to testify from
 23 memory as to what a letter says.
 24 MS. AUERBACH: Well, she says that she
 25 oversees that --

Page 689

1 MR. WEITZMAN: It's not best evidence.
2 MS. AUERBACH: Well, that's one of the
3 documents I've subpoenaed and the subpoena is
4 outstanding. The Petitioner has focused on -- I
5 have subpoenaed sample admission letters from --
6 MR. WEITZMAN: She can answer if she has
7 a photographic memory.
8 THE HEARING OFFICER: She can answer if
9 she recalls what it contains and then as far as
10 what her memory may contain, if that is not
11 perfect, which nobody expects it to be, then that
12 testimony will be given the appropriate weight.
13 You can proceed, Petitioner.
14 BY MS. AUERBACH:
15 Q. Do the admissions letters inform
16 students of their financial package?
17 MR. WEITZMAN: If you recall.
18 MS. AUERBACH: Objection. I mean, it's
19 already been ruled on. Objection to Counsel
20 interrupting the question.
21 THE HEARING OFFICER: You can answer the
22 question, Dr. Prince.
23 BY THE WITNESS:
24 A. I previously indicated that we offer
25 five years of full funding, including stipend

Page 690

1 support and medical coverage. That is outlined in
2 the letter. Beyond that I don't recollect more
3 detail.
4 BY MS. AUERBACH:
5 Q. Do you recollect whether an admissions
6 letter that informs students that as part of the
7 funding, receiving that financial package, they
8 will be required to teach the TA?
9 MR. WEITZMAN: Objection.
10 THE HEARING OFFICER: Overruled. You
11 can answer.
12 BY THE WITNESS:
13 A. I don't recollect.
14 BY MS. AUERBACH:
15 Q. You talked about students who can
16 achieve one of the two TA-ships required by some
17 activities outside of the university such as
18 teaching in a high school.
19 Approximately what percentage of
20 students do that?
21 A. To date it's been a very small number.
22 I don't know the precise number. Fewer than ten
23 students total.
24 Q. Total over what time period?
25 A. Over the time period that I've been dean

Page 691

1 for graduate affairs. Since 2010.
2 Q. Then you talked about being a TA for
3 boot camp. Who participates in that boot camp?
4 A. The incoming graduate class.
5 Q. So the BSD graduate student for that
6 boot camp is a TA for a class that consists of
7 other graduate students?
8 A. Correct.
9 Q. What amount of graduates do that
10 TA-ship?
11 MR. WEITZMAN: Objection. Vague.
12 THE HEARING OFFICER: You just --
13 BY MS. AUERBACH:
14 Q. What percentage of students do that?
15 A. This is a recent policy. No students
16 have yet completed such a TA-ship.
17 Q. Are there people who are doing it right
18 now?
19 A. It doesn't happen until September.
20 Q. Do you have Employer Exhibit 28 in front
21 of you?
22 A. I have 29 through 32. One of the
23 previous ones must have been 28. Yes, I do.
24 Q. Would you turn to Page 5 of 8 of that
25 exhibit. Under the question, What if enrollment in

Page 692

1 my TA course changes or the person cancels? It
2 says that the number of TA-ships listed for any
3 course is based on the projection of the number of
4 students who will enroll in that course.
5 MR. WEITZMAN: Is there a question?
6 MS. AUERBACH: Yes.
7 BY MS. AUERBACH:
8 Q. The question is: How is the number of
9 TA-ships for a given course determined?
10 A. I stated based on the enrollment in the
11 course.
12 Q. Is there a certain number of
13 undergraduate students per TA?
14 A. I don't know.
15 Q. The next sentence refers to changes in
16 enrollment, possibly changing the number of TAs
17 required for the course. So are there any types of
18 policy that's set forth how many TAs are required
19 for a course?
20 MR. WEITZMAN: That's not what the
21 document says. I don't see the word "possible."
22 BY MS. AUERBACH:
23 Q. The document says if the enrollment is
24 very different from the projection this may
25 decrease or increase the number of the TAs required

1 for the course.
2 So I'm asking, is there any policy
3 that sets forth the number of TAs required for the
4 course?

5 A. I don't know.

6 Q. Are there certain courses in which
7 graduate students serve as TAs?

8 A. Yes.

9 Q. How many courses? How many different
10 courses are there?

11 A. It's a high number. More than a hundred
12 possible courses.

13 Q. The courses that you've taught where
14 there are TAs, what courses have those been?

15 A. I've been on campus for 20 years. So
16 the primary courses where TAs have served with me
17 have been a course sequence that we refer to as the
18 AP 5 sequence. That was a two-quarter sequence
19 offered to undergraduates who arrived on campus
20 with a score of five in their advanced placement
21 biology.

22 Before that, I taught a course in a
23 sequence called the 170s. I believe it was called
24 evolution and development.

25 Q. Let's stop there. So taking the first

1 serve as a TA in these courses that you've taught?

2 A. Yes.

3 Q. Who else can serve as a TA or who else
4 has served as a TA?

5 A. Occasionally upper level undergraduates
6 have been asked to serve as TAs in the AP 5 course.

7 Q. Are the vast majority of the TAs
8 graduate students?

9 A. Yes.

10 Q. I'm referring to Employer Exhibit 28.
11 Would you turn to Page 6 of 8. Under the caption
12 Teacher TA for Pay it says that after TA-ing twice
13 to fulfill the requirements students may hold
14 teaching assistantships for additional pay in
15 courses with unfilled TA positions.

16 Does additional pay mean paid
17 beyond their guaranteed funding?

18 A. It does.

19 Q. And what amount of pay do graduate
20 students receive for TA-ing in a class for that
21 pay?

22 A. It varies depending on the class.

23 Q. Can you tell me what the range of pay
24 is?

25 A. I'm not sure.

1 one, the one for students who achieved an AP of 5.
2 Do you recall how many TAs you have in that course?

3 A. We had -- I taught that over multiple
4 years. Most years we had three TAs.

5 Q. Do you recall approximately how many
6 undergraduates were in the course?

7 A. Approximately 60.

8 Q. Is that course ever taught without use
9 of a TA?

10 A. No.

11 Q. The courses in which TAs are used, are
12 any of those ever taught without use of a TA?

13 MR. WEITZMAN: Objection. Vague. Are
14 we talking about Dr. Prince's experience in BSD?

15 MS. AUERBACH: Right now I'm talking
16 about the whole division, if you know.

17 BY MS. AUERBACH:

18 Q. Are there any courses that are --
19 sometimes use TAs and sometimes don't?

20 A. I don't know.

21 Q. The courses where you have taught with
22 TAs, have you ever taught those same courses
23 without the use of TAs?

24 A. No.

25 Q. Does anyone other than graduate students

1 Q. Do you know how that pay is paid out?
2 Is it paid out biweekly or is it paid out by the
3 quarter?

4 A. It's paid out biweekly.

5 Q. Is that paid from division funds?

6 A. It's paid from university funds. The
7 biological sciences collegiate division is somewhat
8 a separate entity to the biological sciences
9 division.

10 Q. Do you know approximately what
11 percentage of graduate students in the biological
12 sciences division TA for pay beyond the part of the
13 TA-ship?

14 A. I don't.

15 Q. Is it the case that graduate students
16 from other graduate divisions can also TA for pay
17 in the biological sciences division?

18 A. I don't know.

19 Q. The graduate students who TA in
20 the -- Well, strike that.

21 For the requirement of running
22 discussion sections that TAs fulfill, how often are
23 they expected to conduct discussion sessions?

24 A. Typically weekly.

25 Q. For how long?

1 A. One hour.
 2 Q. In courses that you have taught with use
 3 of TAs, do you also hold a discussion session?
 4 A. No.
 5 Q. In the courses where you've TAs, how
 6 often are the TAs expected to hold office hours?
 7 A. Weekly.
 8 Q. For approximately how long?
 9 A. Typically two hours.
 10 Q. How are the undergraduates notified of
 11 what the office hours are?
 12 A. They're typically posted on the chalk
 13 website associated with the class and announced
 14 early in the class.
 15 Q. Are the graduate students who service
 16 TAs expected to devote a certain number of hours
 17 per week total to the TA-ship?
 18 A. No.
 19 Q. The TAs who work in classes that are lab
 20 based, how many labs are there weekly they're
 21 expected to participate in?
 22 MR. WEITZMAN: Madam Hearing Officer,
 23 the standing objection that you allowed yesterday,
 24 may we continue to have it today with respect to
 25 the use of the word "work."

1 Q. How many hours is that typically run?
 2 A. Three.
 3 Q. You testified that you discussed the TA
 4 strategies for the discussion sections. If the TA
 5 does a good job leading discussion sections, that
 6 benefits the undergraduate in the discussion
 7 section, correct?
 8 A. The primary goal of running a discussion
 9 section is so that the graduate student TAs gain
 10 experience in that particular mode of teaching.
 11 The benefit to the undergraduate classes is
 12 incidental.
 13 Q. So you testified that in the discussion
 14 groups there's more discussion of topics that were
 15 discussed than lecture.
 16 Are you saying that that doesn't
 17 have any benefit to the undergraduates?
 18 A. That's not my recollection of what I
 19 said earlier.
 20 Q. It's a new question. Are you saying --
 21 does that give no benefits to the undergraduates?
 22 A. Could you clarify the question, please?
 23 Q. The TAs leading -- are undergraduate
 24 students attending discussion sections where
 25 there's further discussion of topics covered in a

1 THE HEARING OFFICER: Yes. It's been
 2 noted for the record. I mean, if anyone wants
 3 to -- before we continue with the questioning that
 4 way we don't have the continual objections.
 5 MR. WEITZMAN: It's the first time it
 6 came up in the cross. I just want to make sure we
 7 have the same standing objection. If it goes
 8 throughout the hearing, you won't hear it any more.
 9 THE HEARING OFFICER: And just to
 10 perhaps bypass future issues for the same thing
 11 that came up yesterday, is it still the case that
 12 the Employer has a standing objection to the use of
 13 the term "salary"?
 14 MR. WEITZMAN: Yes.
 15 THE HEARING OFFICER: So noted for the
 16 record.
 17 MR. WEITZMAN: And compensation.
 18 THE HEARING OFFICER: Thank you.
 19 You can continue your questioning.
 20 BY MS. AUERBACH:
 21 Q. Where TAs serve as a TA in a class -- or
 22 a graduate student serves as a TA in a class that
 23 is lab based, how many labs are there that they are
 24 expected to attend?
 25 A. Typically one.

1 lecture, does that provide no benefit to
 2 undergraduates?
 3 A. The primary benefit is to give the
 4 graduate student teaching assistant an opportunity
 5 to learn how to teach and explain complex concepts
 6 which is an important part of their career
 7 development. The benefit that the undergraduates
 8 may receive from that is inextricably linked to
 9 that process.
 10 Q. So you're saying the sole purpose for
 11 holding discussion sections for the undergraduates
 12 is for the graduate students and no benefits for
 13 the undergraduate students?
 14 A. The primary purpose is to provide the
 15 graduate students with opportunities to practice
 16 their pedagogical skills.
 17 Q. Right. The other purpose?
 18 A. The byproduct is the undergraduate class
 19 will potentially gain additional information.
 20 Q. In the classes that have TAs with
 21 discussion sections, how many lectures are there a
 22 week? Is there a standard number?
 23 MR. WEITZMAN: That's two questions.
 24 BY MS. AUERBACH:
 25 Q. Is there a standard number of lectures a

1 week?

2 A. No, there's not a standard number.

3 Q. What's the range of numbers of lectures

4 a week?

5 A. For classes taught Monday,

6 Tuesday -- Monday, Wednesday, Friday, there are

7 three lectures of 50 minutes each. For classes

8 taught Tuesday and Thursday, there are two lectures

9 of an hour and 20 minutes each.

10 Q. With respect to the grading, you said

11 that after you show the graduate students how to

12 grade you spot check the work for them.

13 You do not check all of their

14 grades after that?

15 A. I don't look through at every single

16 question. I scan through to be confident that the

17 TA has done an effective job on grading. I know

18 that our undergraduate students will raise any

19 questions they have about the grading with me. So

20 I am careful to be very confident that grading was

21 done appropriately.

22 Q. And you want the grading done

23 appropriately so that the undergraduates have

24 appropriate and consistent grading based on their

25 performance?

1 A. I want the graduate students to learn

2 how to be effective graders for their future

3 career. In addition, as the instructor of record

4 personally wanting to be confident that the writing

5 was done appropriately which is why it's my

6 responsibility to confirm that.

7 Q. It would not serve the undergraduates if

8 they had inconsistent and inappropriate grading,

9 correct?

10 MR. WEITZMAN: Objection. Compound.

11 THE HEARING OFFICER: I think we're

12 referring to the same thing. I don't know that

13 it's necessarily compound.

14 MR. WEITZMAN: It's inappropriate and

15 inconsistent. We have to break it up.

16 BY MS. AUERBACH:

17 Q. It would not benefit the undergraduates

18 if the grades they received were not related to the

19 work they performed, correct, were not appropriate

20 for the work they performed?

21 A. That is why it is my job to ensure that

22 the grading is completed effectively and it's my

23 responsibility because it would not serve the

24 undergrads well if the grading were inappropriate.

25 Q. And it would not serve the

1 undergraduates if the grading isn't consistent to

2 the extent that the same quality of work for one

3 student received a different grade than the same

4 quality as another student, correct?

5 A. I think the answer I just gave addresses

6 that same question.

7 Q. You said in the discussion section you

8 want the TAs to teach the students about areas that

9 they might find confusing, correct?

10 A. Yes.

11 Q. Why don't you cover those areas in the

12 lecture classes?

13 A. I do cover those areas in the lecture

14 classes.

15 Q. So why do you ask the TAs to further

16 discuss them in the discussion sections?

17 A. Some topics are particularly difficult

18 to grasp on a first hearing. I additionally

19 encourage the undergrad students to visit me in

20 office hours to ensure that they gain a full grasp

21 of those topics.

22 Q. So is one reason to pay attention to

23 areas the students may find confusing in these

24 discussion sections because it may be more helpful

25 to the undergraduates to hear about it in a smaller

1 group setting?

2 A. These are typically topics which are

3 difficult to adequately communicate, and an

4 important component of developing communication

5 skills is if the graduate student is to practice

6 ways of describing this information in different

7 ways using different analogies such that any

8 audience can better grasp the information.

9 Q. I'm asking about it from the perspective

10 of the undergraduates. Is one reason that you

11 cover more difficult areas in discussion sections

12 because the undergraduates may benefit from

13 hearing --

14 MR. WEITZMAN: Objection to the

15 word -- you mean the TAs or the professor?

16 MS. AUERBACH: The TAs.

17 BY THE WITNESS:

18 A. Could you repeat the question, please?

19 BY MS. AUERBACH:

20 Q. Is one reason you ask the TAs to cover

21 areas the undergraduates might find confusing in

22 the discussion section is because the

23 undergraduates may find it easier to learn about

24 those subjects in a smaller group setting?

25 A. Again, the primary goal --

Page 705

1 Q. I'm not asking about the primary goal.
 2 MR. WEITZMAN: Objection.
 3 MS. AUERBACH: Well, every question I'm
 4 asking she's not answering the question. She's
 5 talking about the primary goal. I'm just asking a
 6 reason, not whether it's primary.
 7 MR. WEITZMAN: So the way it should work
 8 is this. Counsel asks the question. The witness
 9 is allowed to complete an answer. If the answer is
 10 not responsive, Counsel can move to strike, but for
 11 Counsel to jump in in the middle of a question just
 12 because she doesn't like an answer, she's taking
 13 over the role of the Hearing Officer. She's
 14 preempting the decision as to whether it's
 15 responsive or not. That's your role, not her role.
 16 She must be allowed to answer the question.
 17 MS. AUERBACH: Well, this hearing is
 18 going to take all day if the witness just keeps
 19 giving rehearsed answers for every question I ask.
 20 I'm not asking just about primary or what she views
 21 as primary. I think I'm entitled to an answer to
 22 the question.
 23 THE HEARING OFFICER: So I agree with
 24 both of you let the record reflect. So the witness
 25 should be permitted to give a full response.

Page 706

1 However, I do understand the Petitioner is
 2 repeating its questions because we're not
 3 necessarily getting the answer to the question
 4 asked. So maybe rephrase your questions a bit.
 5 There's a lot of double negatives.
 6 With regards to complex issues
 7 raised in lectures that are then discussed in the
 8 smaller setting with the TAs, would you say that
 9 the graduate students glean a benefit from
 10 repeating or repeat coverage of these complex
 11 topics? Sorry if that was not clear. Because
 12 we're such a long hypothetical, which is why I hate
 13 these questions.
 14 A topic -- a complex topic which
 15 was covered in lecture is being covered again by a
 16 TA in a small discussion session. Is that
 17 beneficial to the undergraduate student?
 18 So we know in your testimony there
 19 is primary benefit to the graduate student in
 20 teaching in that format, but is there a benefit to
 21 the undergraduate student?
 22 BY THE WITNESS:
 23 A. There should be a benefit if the TA has
 24 developed sufficient skills to adequately describe
 25 the topic.

Page 707

1 THE HEARING OFFICER: Thank you.
 2 BY MS. AUERBACH:
 3 Q. If the TA, in a discussion session,
 4 stays on the topic that was designated for that
 5 discussion session, that would provide more benefit
 6 to the undergraduates in the section than if the TA
 7 goes off topic, correct?
 8 MR. WEITZMAN: Objection. Hypothetical.
 9 MS. AUERBACH: She testified
 10 specifically about telling TAs to bring the
 11 discussion back to the topic.
 12 THE HEARING OFFICER: That was one of
 13 the things covered under direct about --
 14 MR. WEITZMAN: The question was if, so
 15 that made it a hypothetical.
 16 THE HEARING OFFICER: This seems to be
 17 what we're dealing in mostly these days, so I'll
 18 allow the question.
 19 Please repeat the question,
 20 Counsel.
 21 BY MS. AUERBACH:
 22 Q. If the TA stays on the topic designated
 23 for discussion sections, that provides more benefit
 24 to the undergraduates in a section then if the TA
 25 goes off topic, correct?

Page 708

1 A. It's difficult to give a response to
 2 that without knowing more details about the
 3 hypothetical situation.
 4 Q. Well, you said the TA knows the core of
 5 the materials that would be the subject of the
 6 exam?
 7 THE HEARING OFFICER: Would it be fair
 8 to characterize if the TA strayed away from
 9 nonlesson plan material? Would that be a good
 10 hypothetical in this scenario?
 11 MS. AUERBACH: We can try that.
 12 MR. WEITZMAN: If the hypothetical has
 13 no foundation, I don't know that this has ever
 14 happened. It's a pure hypothetical.
 15 THE HEARING OFFICER: I mean, she did
 16 testify that one of the things that she does teach
 17 to the graduate students in how to properly conduct
 18 their discussion sessions is how to -- should the
 19 discussions stray off topic is how to lead it back
 20 to the topic at hand.
 21 MR. WEITZMAN: Exactly. That's when the
 22 student takes it off topic. Not when the TA takes
 23 it off topic which is a hypothetical.
 24 MS. AUERBACH: Well, the question was
 25 intended to be geared at keeping the discussion

1 session on topic. That would include discussions
 2 by the graduate -- the discussion in the session
 3 presumably between the TA and the undergraduate.
 4 THE HEARING OFFICER: Can you repeat the
 5 question?
 6 BY MS. AUERBACH:
 7 Q. If a TA does a good job in keeping the
 8 discussion in a discussion section on the topic
 9 designated for that section, that benefits the
 10 undergraduates in the section more than if the TA
 11 allows the discussion topic to go off topic,
 12 correct?
 13 A. It's really not possible to answer that
 14 given that I cannot speculate whether the off-topic
 15 discussion may have had some intrinsic value to the
 16 student given that I'm not there to witness it.
 17 Q. Well, let's try this. If the TA keeps
 18 the -- does a good job of keeping a discussion in
 19 the discussion section on the designated topic,
 20 that benefits the undergraduates more with respect
 21 to learning the course material designated for that
 22 section than if the TA allows the discussion to
 23 stray off topic?
 24 MR. WEITZMAN: Asked and answered.
 25 THE HEARING OFFICER: I don't know if it

1 was answered in this context.
 2 You can answer it, Dr. Prince.
 3 BY THE WITNESS:
 4 A. That is correct.
 5 BY MS. AUERBACH:
 6 Q. When an undergraduate goes and talks to
 7 a teaching assistant during a teaching assistant's
 8 office hours for help with understanding course
 9 material, that benefits the undergraduate students,
 10 correct?
 11 A. It benefits both the graduate student
 12 who's having the opportunity to practice the skills
 13 of explaining topic and the undergraduate who's
 14 gaining information.
 15 Q. And you said that you provide guidance
 16 to a teaching assistant before a teaching assistant
 17 will give a -- have a chance to give a lecture in
 18 the class?
 19 A. Correct.
 20 Q. And that benefits the undergraduate
 21 because they receive a higher quality lecture in
 22 that class, correct?
 23 A. It's likely that if I, as the
 24 instructor, gave the lecture it would be of higher
 25 quality. Part of the goal is to ensure that our

1 graduate students have an opportunity to present to
 2 students in a mentored fashion and learn to do that
 3 as part of their professional development.
 4 Q. Dr. Prince, I did not mean to compare
 5 that -- graduate students lectures to your lecture.
 6 I was intending to compare it to a graduate student
 7 giving a lecture without having first received
 8 feedback from you.
 9 A. If the graduate student didn't get
 10 adequate mentorship and training from me as the
 11 faculty instructor, the lecturer would indeed
 12 likely be of poor quality.
 13 Q. And so it benefits the undergraduate if
 14 the TA receives guidance from you before giving a
 15 lecture? The undergraduates attending that lecture
 16 will receive a higher educational benefit from the
 17 lecture if the TA receives guidance from you than
 18 if the TA doesn't receive guidance from you
 19 beforehand, correct?
 20 A. Correct.
 21 Q. You testified that the division offers
 22 pedagogy courses. Those courses are not required
 23 for graduate students?
 24 A. No.
 25 Q. Is that correct?

1 A. That is correct.
 2 Q. When the graduate students are trying to
 3 find a class to TA for, do they have to do a
 4 written application or is it all done orally?
 5 A. It's all done orally up to the point
 6 that they register for the experience when they
 7 complete the paperwork so that the experience is
 8 properly recorded.
 9 Q. And you said that there may be times
 10 where the graduate student does not get the first
 11 class they hope to TA for, and why is that?
 12 A. Typically because another graduate
 13 student has already agreed to TA that class.
 14 Q. You identified student evaluations that
 15 are used to evaluate graduate students. Are those
 16 evaluations or similar evaluations also used to
 17 evaluate faculty teaching courses in a division?
 18 MR. WEITZMAN: Objection.
 19 THE HEARING OFFICER: Let's go through
 20 each of the exhibits.
 21 BY MS. AUERBACH:
 22 Q. Well, let me ask a different question.
 23 If you -- actually in Employer Exhibit 29.
 24 A. Yes.
 25 Q. The exhibit is a student teaching

Page 713

1 evaluation. Is there also a student evaluation
2 completed by undergraduates for faculty members in
3 the division who teach courses?
4 A. Yes.
5 Q. Is it similar to Employer Exhibit 29?
6 MR. WEITZMAN: Objection. Similar is
7 vague.
8 MS. AUERBACH: She can answer.
9 BY MS. AUERBACH:
10 Q. Are the questions similar?
11 A. The questions are not identical.
12 Q. How do the questions differ?
13 A. Without having a copy of the faculty
14 evaluation in front of me, I can't go into details,
15 but they are not the same details as on this list.
16 Q. Do students -- are students asked to
17 fill out evaluations for all courses taught by
18 faculty members?
19 A. They are.
20 THE HEARING OFFICER: Before we move on
21 from these exhibits, I had a quick clarifying
22 question.
23 Employer Exhibit 31, the course
24 director evaluation, is the course director the
25 same as the instructor of record?

Page 714

1 BY THE WITNESS:
2 A. Yes.
3 THE HEARING OFFICER: Thank you.
4 That was my only question.
5 (Pause.)
6 BY MS. AUERBACH:
7 Q. When it's time for the graduate students
8 to select a lab that they'll be conducting their
9 research in, the graduate students select labs
10 where research that they're interested in is being
11 conducted, correct?
12 A. Correct.
13 Q. And the research that they do in the lab
14 is for both their interest and that of the
15 principal investigator in the lab, correct?
16 MR. WEITZMAN: Compound.
17 THE HEARING OFFICER: I suppose that's
18 the first, the interest of the graduates.
19 BY THE HEARING OFFICER:
20 Q. So conducting research in a lab that
21 jives with their own interest as far as the
22 interest of the graduate students, is that an
23 accurate representation? Is part of the interest
24 of the graduate student to conduct research in a
25 lab that is consistent with their interest? Is

Page 715

1 that accurate?
2 A. Yes.
3 Q. And does it further the interest of the
4 PI to have graduate students working in their lab
5 conducting research that are similar in nature to
6 their own?
7 A. Yes. But because PIs are very
8 interested in developing graduate students to be
9 excellent scientists of the future. So in that
10 regard it certainly is value -- brings value to the
11 PI whose legacy is the mentee's that they generate
12 through mentoring in the laboratory environment.
13 BY MS. AUERBACH:
14 Q. So the researcher in your lab, your
15 graduate students who are in the lab, are all doing
16 research related to the subject of your research?
17 A. We have a team that is all doing
18 research in the same broad topic.
19 Q. And you talked about graduate students
20 writing manuscripts for publication, correct?
21 A. Students do write manuscripts for
22 publication, yes.
23 Q. And you are frequently listed as one of
24 the authors on those publications and those
25 articles?

Page 716

1 MR. WEITZMAN: Objection. Frequently is
2 vague.
3 MS. AUERBACH: She can answer.
4 THE HEARING OFFICER: You can answer.
5 BY THE WITNESS:
6 A. That would be the norm in my field.
7 (Petitioner No. 16 was marked.)
8 BY MS. AUERBACH:
9 Q. I handed you a document marked for
10 identification as Petitioner Exhibit 16. Can you
11 identify what this is?
12 A. This is the abstract of a paper
13 published in 2015 in the journal Developmental
14 Biology coauthored by a previous graduate student
15 in my lab, Crystal Love and myself.
16 Q. Was Crystal Love a graduate student in
17 your lab at the time this paper was published?
18 A. Crystal had recently left the lab after
19 her graduation at the time the paper was published.
20 Q. Had she done the work that's the subject
21 of the publication while she was in your lab?
22 A. Crystal and I both participated in the
23 experimentation published in this paper. She had
24 completed the part that she did before leaving my
25 lab. I did additional experiments independent of

Page 717

1 her after her graduation date to enable the paper
2 to be published.
3 Q. But all of the work that she did towards
4 the paper was performed in your lab as a graduate
5 student?
6 A. Correct.
7 MS. AUERBACH: I move the admission of
8 Petitioner Exhibit 16.
9 MR. WEITZMAN: No objection.
10 THE HEARING OFFICER: Petitioner
11 Exhibit 16 is received.
12 (Petitioner No. 17 was marked.)
13 BY MS. AUERBACH:
14 Q. I've handed you a document marked for
15 identification as Petitioner Exhibit 17. Can you
16 identify what that is?
17 A. This is another paper published in 2012
18 in the journal Developmental Dynamics, again,
19 co-authored by Crystal Love and me.
20 Q. Did Crystal Love perform the research
21 for her part of this publication while she was a
22 graduate student in your lab?
23 A. She did.
24 Q. Did you also do research related to the
25 topic of the paper that was part of the paper

Page 718

1 published?
2 A. I mentored Crystal in the process of
3 this research very closely because, as you can tell
4 from the dates, it was done when she was a much
5 more junior student in the secondary study. So I
6 was intimately involved in training her in the
7 techniques that she used in the study.
8 Q. And is that why you're listed as one of
9 the authors on the paper?
10 A. The ethics of publication require
11 authors to have a practical or an intellectual
12 component contribute to the work. I had both in
13 this case.
14 Q. And how is it determined who is listed
15 as the first author and who is listed as the second
16 author in the publication?
17 A. This is somewhat subfield dependent. In
18 my subfield it's standard for the senior author who
19 mentored the work to be listed as the last author
20 and the individual who did the largest proportion
21 of the experimental work to be listed as the first
22 author. In this case there are only two authors.
23 MS. AUERBACH: I move the admission of
24 Petitioner Exhibit 17.
25 MR. WEITZMAN: No objection.

Page 719

1 THE HEARING OFFICER: Petitioner
2 Exhibit 17 is received.
3 (Petitioner No. 18 was marked.)
4 BY MS. AUERBACH:
5 Q. I've handed you a document marked for
6 identification as Petitioner Exhibit 18. Is this a
7 printout from the website for your laboratory?
8 A. Yes.
9 Q. And what does this page list?
10 A. This is a list, I believe, completely
11 comprehensive of all of the publications I have
12 coauthored since 1990.
13 Q. Other than Ms. Love that we've already
14 discussed, are any other authors listed here people
15 who were graduate students in your lab at the time
16 they participated in authoring the publication?
17 A. Yes.
18 Q. And which one?
19 A. We start with the furthest back in the
20 past on the last page, James McClintock was my
21 first graduate student, Michael Hunter, listed as
22 Hunter, M. in this second from the top paper but
23 also got to appear in other papers, was my second
24 student. David Stafford at the top of that page
25 was my third student. Then those authors appear in

Page 720

1 additional publications.
2 Q. And the additional publications they
3 appear in, were those all published while they were
4 in your lab?
5 A. Yes. Other students we've already
6 mentioned, Crystal Love, Onie Mapp. I'm looking
7 here for Monica Rohrschneider who should be on this
8 list. I'm missing a page. I've got two copies of
9 the first page, and I'm missing the second page.
10 That's why I'm missing people. Monica
11 Rohrschneider, Gina Elston, Onie Mapp and Crystal
12 Love. Stephanie Eames also listed here, was
13 jointly supervised by me and a colleague, Lou
14 Phillipson, who is listed as the senior author on
15 the fourth paper down. That's been all of my
16 graduate students.
17 MS. AUERBACH: I move for the admission
18 of Petitioner Exhibit 18.
19 MR. WEITZMAN: No objection.
20 THE HEARING OFFICER: Petitioner
21 Exhibit 18 is received.
22 BY MS. AUERBACH:
23 Q. When you train graduate students in
24 writing, that helps the quality of the publications
25 that they co-author with you, correct?

1 A. That would be correct. It also develops
 2 their writing skills for the future.
 3 Q. Training graduate students on use of the
 4 lab equipment, in addition to benefitting the
 5 graduate student, benefits the entire laboratory
 6 team, correct?
 7 A. That's correct.
 8 Q. With respect to grant proposals that you
 9 applied for, are those NIH and NSF?
 10 MR. WEITZMAN: Compound. I don't know
 11 if she's saying yes to one or the other.
 12 THE HEARING OFFICER: Any external
 13 experience out of NIH or NSF, do you apply for any
 14 such grants?
 15 BY THE WITNESS:
 16 A. I do.
 17 BY MS. AUERBACH:
 18 Q. What other sources do you apply for
 19 grants?
 20 A. In the past I've had funding from
 21 multiple different organizations. The March of
 22 Dimes, The Juvenile Diabetes Research Foundation,
 23 The Chicago Biomedical Consortium. The one from
 24 many years ago that I'm forgetting the name of, The
 25 White-something, the Brain Research Institute in

1 addition to NSF and NIH funding.
 2 BY MS. AUERBACH:
 3 Q. And when you apply for those grants, are
 4 you required to follow procedures set out by the
 5 university research administration?
 6 A. Yes.
 7 (Petition No. 19 was marked.)
 8 Q. I've handed you a document marked for
 9 identification as Petitioner Exhibit 19. Are you
 10 familiar with this website from the university
 11 research administration?
 12 A. No.
 13 (Petition No. 20 was marked.)
 14 Q. I've handed you a document marked as
 15 Petitioner Exhibit 20. Are you familiar with this
 16 web page?
 17 A. No.
 18 Q. Are you familiar with budget
 19 justification statements?
 20 A. Yes.
 21 Q. In grant applications, are you familiar
 22 with using the term "graduate research assistant"?
 23 A. Yes.
 24 Q. And is that a PhD student who serves in
 25 your lab?

1 A. It's a PhD student who's doing research
 2 under my mentorship in my lab.
 3 Q. That's the term used in the grant
 4 application, "graduate research assistant"?
 5 A. Yes.
 6 Q. And when you write a grant application,
 7 is there a section of the application for personnel
 8 costs?
 9 A. There is.
 10 Q. And in that section is one of the things
 11 that's listed a dollar amount to be allotted to
 12 graduate research assistants in the lab?
 13 A. That's correct.
 14 Q. Does the university research
 15 administration give you information as to what that
 16 dollar amount should be?
 17 A. The source of that information is
 18 typically the grants person in the department, but
 19 the information may come from a high level.
 20 Q. So there is -- when you say "the grants
 21 person in the department," is there someone in the
 22 department designated to oversee grant --
 23 A. We have a grant administrator who works
 24 on pre-award grants and ensures that we use
 25 appropriate language in the budget justifications

1 and elsewhere.
 2 Q. And does that grant administrator give
 3 you the amount to list for the personnel costs
 4 associated with graduate research assistants in
 5 your lab?
 6 A. They do.
 7 Q. And do you recall for fiscal year '17
 8 what that amount was?
 9 A. Not precisely.
 10 Q. Do you recall whether it was equal to,
 11 more than or less than the amount of the stipend
 12 given graduate students annually?
 13 A. It should be the amount of stipend plus
 14 tuition as laid out here.
 15 Q. By "here" you're referring to Petitioner
 16 Exhibit 20?
 17 A. Yeah, on this document, which is the
 18 fiscal year '18.
 19 Q. As a principal investigator in the lab,
 20 are you responsible for ensuring that the work
 21 performed by all of those listed under the
 22 personnel section on the grant are performing
 23 research consistent with the grant proposal?
 24 A. Yes.
 25 Q. Does the grant proposal also include a

Page 725

1 dollar amount associated with indirect costs
2 or -- indirect costs?
3 A. It does.
4 Q. Do you know what the indirect costs
5 equals?
6 A. Could you rephrase the question?
7 Q. Do you know what items come within the
8 term indirect costs?
9 A. I don't.
10 Q. Does it include budget amounts for use
11 of the university facilities?
12 MR. WEITZMAN: Asked and answered.
13 BY MS. AUERBACH:
14 Q. I'm asking a more specific question.
15 THE HEARING OFFICER: Overruled.
16 You can answer, if you know.
17 BY THE WITNESS:
18 A. I don't know what is covered by indirect
19 costs.
20 BY MS. AUERBACH:
21 Q. Is that -- is the amount of indirect
22 costs also given to you by the grant administrator
23 for your department?
24 A. Yes. It's a percentage that's
25 negotiated between the federal agencies and the

Page 726

1 university.
2 Q. And that amount, indirect costs, goes to
3 the university rather than to your lab?
4 A. Correct.
5 Q. Do you know how that dollar amount of
6 the indirect costs that goes to the university
7 compares with the dollar amount that goes to your
8 lab?
9 A. It's low.
10 Q. It's lower?
11 A. Yes.
12 Q. Is it about 60 percent that goes to your
13 lab?
14 A. It varies year by year. It's not
15 necessarily the same agency by agency.
16 Q. And in the grant proposals that you
17 write, does the personnel cost section also include
18 a dollar amount associated with your salary?
19 A. It does.
20 Q. Does that amount equal the amount of
21 your actual salary?
22 MR. WEITZMAN: Objection. Relevance.
23 MS. AUERBACH: Well, she testified that
24 she writes the grant proposals for the aid of the
25 research assistants -- for the aid of the graduate

Page 727

1 students rather.
2 MR. WEITZMAN: Dr. Prince's salary is
3 irrelevant. She said it includes her salary. What
4 the amount is is irrelevant.
5 MS. AUERBACH: I didn't ask her for the
6 dollar amount of her salary.
7 MR. WEITZMAN: You asked her how it
8 compared to other numbers. That's virtually the
9 same thing.
10 MS. AUERBACH: No, no, no. I asked her
11 if the amount that's listed in the grant
12 application for her salary is equal to the amount
13 of her actual salary. I'm not asking what that
14 amount is.
15 THE HEARING OFFICER: You can answer,
16 Dr. Prince.
17 BY THE WITNESS:
18 A. It's not. It's for a small proportion
19 to cover efforts associated with that particular
20 study.
21 BY MS. AUERBACH:
22 Q. Is that dollar amount also given to you
23 by the grant administrator of the department?
24 A. It's a discussion between the grant
25 administrator, the chair of the department and the

Page 728

1 faculty member as to what an appropriate percentage
2 is. In some cases it's defined by the agency.
3 That's true for NSF. A maximum is defined by the
4 agency.
5 Q. Do you currently have one grant or more
6 than one grant in your lab?
7 A. I have two grants plus two training
8 grants which is designated for student support.
9 (Petitioner No. 21 was marked.)
10 Q. I've handed you a document marked as
11 Petitioner Exhibit 21. Are you familiar with this
12 web page?
13 A. I'm not.
14 Q. Are you familiar with internal budget
15 templates for grant writing?
16 A. Yes.
17 Q. If you will just look at the item, there
18 are 12 items listed as direct cost items. Are
19 these accurate as to the items that you have to
20 complete for direct costs on your grant proposal?
21 A. Yes. Although not every cost would be
22 pertinent to a specific grant proposal.
23 Q. Are there certain ones that would be
24 included in all grant proposals?
25 A. Yes.

1 Q. Which ones are those?
 2 A. Salaries or wages, supplies. Those are
 3 the only two that would be consistent on every
 4 single research grant.
 5 Q. Is it part of the mission of the
 6 university to conduct original research?
 7 A. Absolutely.
 8 Q. And the graduate students in your lab
 9 further that mission of the university, correct?
 10 A. They do.
 11 Q. We talked about training grants. Would
 12 you explain what those are?
 13 A. These are grants primarily on our campus
 14 from the National Institute of Health, but we do
 15 have grants from other federal agencies also, which
 16 have the goal of supporting and furthering the
 17 training of graduate students.
 18 Q. And are those -- how do you go about
 19 getting those grants?
 20 A. If an individual faculty member wishes
 21 to apply for a training grant, they would
 22 typically, in the BSD, meet with me as the dean of
 23 the graduate affairs to discuss whether that's
 24 appropriate, but most of the training grants have
 25 been running for some years. The training grant

1 Resolving the troubleshooting and moving the
 2 research ahead also benefits the team as a whole.
 3 Q. When the graduate students do their
 4 rotations through the two to four labs that they
 5 rotate through, in addition to helping the graduate
 6 student choose a lab, does that also help the PI in
 7 the lab decide whether they feel they would like to
 8 work with a particular graduate student?
 9 A. Yes. It gives a good opportunity for
 10 both sides to determine whether there's an
 11 appropriate fit in interest and in style.
 12 Q. When you talked about a requirement that
 13 a student remain in good academic standing, does
 14 that include fulfilling the TA requirements?
 15 A. In principle but that has never been an
 16 area where a student has fallen out of academic
 17 standing. All they have to do is do the TA
 18 requirement. My office reminds students if they're
 19 getting close to graduation and have not yet
 20 completed their requirement. Their graduate
 21 program tracks that also.
 22 Q. Do the students receive notice each year
 23 whether the funding is going to continue because
 24 they've satisfied requirements?
 25 A. We don't currently give annual notices

1 that I'm the PI on was a new training grant when it
 2 was first awarded approximately eight years ago.
 3 The process is to identify whether
 4 we have expertise in a mission area and whether we
 5 have classes and training activities in place that
 6 could potentially be built on and augmented through
 7 the acquisition of the training grant to enable
 8 excellent training and research in the domain area
 9 appropriate to the grant mechanism.
 10 Q. Is it true that some of the graduate
 11 students that are on training grants are required
 12 to do additional TA-ships as a condition of
 13 receiving training grants?
 14 A. It's not true for any of the current
 15 training grants that we have on campus in the BSD.
 16 Q. You talked about experiments failing.
 17 Have you conducted experiments in your lab that
 18 have failed?
 19 A. Frequently.
 20 Q. Helping graduate students troubleshoot
 21 when they experience failures, does that benefit
 22 the entire lab team?
 23 A. The process of troubleshooting benefits
 24 the team and the individual because everybody
 25 learns how to be a more effective researcher.

1 of funding. It's assumed it will continue.
 2 Q. Are faculty members who work in labs
 3 required to take ethics courses?
 4 A. No.
 5 Q. Are you required to do some kind of
 6 ethics -- some requirement to meet an ethics
 7 training?
 8 A. NIH requires trainees to take ethics
 9 courses every four years. Currently they don't
 10 have a formal requirement for the faculty to have
 11 ethics training. However, many of the faculty are
 12 directly involved in teaching the ethics courses to
 13 our students providing a useful review.
 14 Q. Does the ethics training that's given to
 15 the graduate students fulfill the NIH ethics
 16 training requirement?
 17 A. It does.
 18 MS. AUERBACH: I move to introduce
 19 Petitioner Exhibit 19, 20 and 21, which are pages
 20 to the website which I provided Counsel this
 21 morning before I went on the record.
 22 THE HEARING OFFICER: So you just said
 23 19, 20 and 21?
 24 MS. AUERBACH: Correct.
 25 MR. WEITZMAN: No objection as to

1 authentication.
 2 THE HEARING OFFICER: Petitioner 19, 20
 3 and 21 are received.
 4 MS. AUERBACH: Could we go off the
 5 record for a couple minutes?
 6 THE HEARING OFFICER: Sure.
 7 Off the record.
 8 (Whereupon, a break was taken,
 9 after which the following
 10 proceedings were had:)
 11 THE HEARING OFFICER: On the record.
 12 MS. AUERBACH: I don't have any more
 13 questions.
 14 THE HEARING OFFICER: Before redirect I
 15 just have a few questions for the witness.
 16 BY THE HEARING OFFICER:
 17 Q. So you testified about the types of
 18 instruction you give to TAs who run discussion
 19 sections. You also testified that you do
 20 not -- sometimes do not personally run discussion
 21 sections.
 22 Do you ever sit in on the sections
 23 being conducted by your TA?
 24 A. I have in the past.
 25 Q. How frequently does that occur in a

1 They're career teachers essentially.
 2 Q. So they're not enrolled at the
 3 university?
 4 A. That is correct. They're not students.
 5 They're staff.
 6 Q. You had testified about pedagogy courses
 7 that are offered to graduate students. Have you
 8 ever conducted any of these courses yourself?
 9 A. I have not.
 10 Q. So you testified about the one
 11 experience you had with a TA where the instructor
 12 of record had purported a poor performance.
 13 Meaning they had not been active or living up to
 14 the expectation of the TA-ship. Do you recall
 15 that?
 16 A. I do recall. It was not exclusively
 17 based on the evaluation of the instructor. It was
 18 also based on the evaluation by the students in the
 19 class.
 20 Q. So you had mentioned that this
 21 individual had been given additional training and
 22 then was made a TA again.
 23 Do you recall, if as far as meeting
 24 their two-course requirement, if that first course
 25 counted towards the requirement?

1 particular quarter?
 2 A. I would typically sit in once or twice
 3 at the beginning of the quarter and see how the
 4 discussion session is going. And if it was going
 5 well, did not feel the need to stay longer.
 6 Q. You had testified about the TA
 7 requirements or TA academic requirements for PhD
 8 students within the BSD.
 9 Is it accurate that PhD students
 10 within the BSD are never lecturers within the BSD?
 11 A. That is accurate.
 12 Q. This is just a clarifying question. I
 13 may have misunderstood your answer.
 14 So you had testified about some of
 15 the core courses.
 16 A. Yes.
 17 Q. And you said that they have PhD-level
 18 lecturers. When you say "PhD level," do you mean
 19 grad students or in the faculty who have already
 20 obtained their PhD?
 21 A. They are not faculty. They're staff
 22 members or nontenure track, but we would refer to
 23 them as lecturers. It's a different position.
 24 They already have their PhD. They're employees of
 25 the division, and they deliver those lectures.

1 A. It did not because I did not give the
 2 student a pass. I felt that his performance did
 3 not warrant a pass. Therefore, he only met the
 4 requirements when he had both completed the TA
 5 training course and passed the actual TA-ship.
 6 Q. Would there ever be an instance where a
 7 grad student would be required to secure funding
 8 from outside the university for the research?
 9 A. No.
 10 Q. While graduate students are pursuing
 11 their degree at the University of Chicago, are they
 12 required to publish research in that time?
 13 A. There's a strong expectation of
 14 publication. Some of our programs have a
 15 requirement of publication or submission of a
 16 publication before graduation. It's not a uniform
 17 requirement across the whole division.
 18 Q. Can you give me an example of the
 19 department that requires publication?
 20 A. The committee on development
 21 regeneration and stem cell biology requires a first
 22 author publication.
 23 Q. Is it just one publication that is
 24 required?
 25 A. Yes. But there is an expectation that

1 many students should publish more than one paper
2 during their graduate student years.

3 Q. With regard to some of the equipment
4 that is used in your lab, is there any particular
5 training required before individuals are permitted
6 to use certain equipment?

7 A. In order to work independently with our
8 animals, students and other staff must complete
9 training through the Institutional Animal Care and
10 Use Committee, but the equipment we have in the lab
11 requires basic safety training, but not specific
12 training on a piece of equipment beyond what is
13 provided in the context of the lab by me or other
14 lab members.

15 Q. So the safety training that you just
16 described is offered by the university?

17 A. Yes.

18 Q. Do any of the graduate students in your
19 lab work with animals?

20 A. Yes.

21 Q. So then the certification that you
22 described, it has to -- this is from outside the
23 university?

24 A. No. It's an internal certification.
25 That's why it's called the Institution Animal Care

1 and Use Committee. They have to do an occupational
2 health and safety training as well as animal
3 specific training, followed by lab specific
4 training offered within our lab by me and other
5 members of the lab.

6 Q. So you'll have to forgive myself as a
7 unscientific layperson. What are reagents?

8 A. Usually chemicals -- I can't think of a
9 better word. We purchase the ingredients, if you
10 want to think of it that way, from companies, that
11 are used in experiments. Commercially available
12 typically.

13 Q. Whenever a graduate student is serving
14 in a lab rotation, is their stipend affected at all
15 by the time spent in that rotation?

16 A. No.

17 Q. You had testified about how many labs
18 have certain amount of funding set aside for not
19 necessarily unrelated research but tangential
20 research.

21 Are there any special steps that
22 need to be taken to access this funding?

23 A. Not typically.

24 Q. If a graduate student in pursuing a
25 topic they have chosen for their dissertation,

1 would they be able to access that funding? Or
2 perhaps I'm talking about two different things.

3 A. It's obviously important there's funding
4 available to allow the student to pursue their
5 intellectual interests. A conversation about that
6 would be an important part of selecting a lab to
7 join.

8 Q. So when we refer to the BSD and the
9 departments under that umbrella, are those
10 departments only available to graduate students, or
11 are they available to undergraduates as well?

12 MR. WEITZMAN: You called them programs.
13 BY THE HEARING OFFICER:

14 Q. Oh, I'm sorry. Programs?

15 A. The programs are not directly available
16 to undergraduates.

17 Q. Are there undergraduate programs that
18 would fall under the umbrella of the BSD?

19 A. Yes.

20 Q. Do you know how many of those there are?

21 A. There are currently two majors.

22 Q. Do you know how many undergraduate
23 enrollments there currently are in those majors?

24 A. I don't know.

25 Q. You had testified about there are some

1 instances when a graduate student in the BSD may
2 enter a TA-ship after they had surpassed their two
3 TA requirements.

4 Are you -- in your personal
5 experience, are you aware of any individual who has
6 already met those requirements and has applied for
7 such TA-ship, have they ever been denied that
8 TA-ship?

9 A. Not to my knowledge.

10 Q. You had testified about if the graduate
11 student is performing poorly they may be placed on
12 academic probation and if they continue to perform
13 poorly they may be dismissed from the program.

14 Do you know if that's ever
15 occurred?

16 A. It has.

17 Q. How frequently does that occur?

18 A. It's vary rare. Probably one or fewer
19 per year.

20 Q. I know this may be somewhat broad, but
21 in those particular instances, do you recall what
22 sort of things led to their dismissal from the
23 program?

24 A. Certainly they vary substantially from
25 individual to individual.

Page 741

1 Q. Do you recall -- was there any instance
2 of this occurring in the most recent academic year?
3 MR. WEITZMAN: It would be preferable if
4 we didn't talk about recent. Maybe something from
5 the past would be better.
6 BY THE HEARING OFFICER:
7 Q. Oh, okay. So in instances prior, I
8 apologize. Just generally do you know what sort of
9 things would lead to students being dismissed from
10 the program?
11 A. Typically it would involve a loss of
12 motivation by the student who essentially loses the
13 interest in pursuing their graduate studies and
14 therefore is not showing up or is essentially not
15 performing research anymore.
16 THE HEARING OFFICER: I think that was
17 the last question I have.
18 MR. WEITZMAN: I have just a couple of
19 questions. May I?
20 THE HEARING OFFICER: Yes.
21 REDIRECT-EXAMINATION
22 BY MR. WEITZMAN:
23 Q. On cross-examination you were asked
24 whether faculty takes the ethics course. You said,
25 no, we teach the ethics course. Are you one of

Page 742

1 those professors?
2 A. I co-direct the ethics course for the
3 junior students. I'm also involved in teaching one
4 of the courses for senior students. Although I
5 missed my class today.
6 Q. Sorry about that.
7 Let me direct your attention to
8 Exhibit 18 which is a list of articles, and you
9 identified some of them where you coauthored with
10 your graduate students.
11 With respect to those instances
12 where you are listed as a co-author, did you comply
13 with the ethical obligations that entitled you to
14 be a co-author?
15 A. Yes.
16 Q. Let's talk about troubleshooting. Does
17 any troubleshooting of failed experiments occur on
18 graduate students dissertation research?
19 A. Yes.
20 Q. When that occurs, who benefits from the
21 troubleshooting you do on graduate students failed
22 experiments?
23 A. The student and the lab team.
24 MR. WEITZMAN: No further questions.
25 THE HEARING OFFICER: Does Petitioner

Page 743

1 have any further questions for the witness?
2 MS. AUERBACH: I have a couple.
3
4
5 RECROSS-EXAMINATION
6 BY MS. AUERBACH:
7 Q. The safety training that's offered by
8 the university, do the technicians who work in your
9 lab take that safety training?
10 A. They do.
11 Q. Do the technicians who work in your lab
12 take the training on working with animals?
13 A. If they work with animals, they do.
14 Q. Do they take the OSHA training?
15 A. Yes.
16 Q. Do they also get the informal training
17 within the lab that you provide?
18 A. Yes.
19 MS. AUERBACH: That's all I have.
20 THE HEARING OFFICER: Any further
21 questions?
22 MR. WEITZMAN: No re-redirect.
23 THE HEARING OFFICER: All right. Then,
24 Dr. Prince, you are excused.
25 THE WITNESS: Thank you.

Page 744

1 THE HEARING OFFICER: Off the record for
2 a minute.
3 (Whereupon, a discussion was
4 had off the record.)
5 THE HEARING OFFICER: If the Employer
6 can call its next witness.
7 MR. SALVATORE: Thank you, Madam Hearing
8 Officer. The University of Chicago calls
9 Dr. William Rando.
10 (Witness sworn.)
11 THE WITNESS: I do.
12 THE HEARING OFFICER: Have a seat.
13 WHEREUPON:
14 WILLIAM RANDO, PhD,
15 called as a witness herein, having been first duly
16 sworn, was examined and testified as follows:
17 DIRECT EXAMINATION
18 BY THE HEARING OFFICER:
19 Q. If the witness could state and spell
20 your name for the record.
21 A. William Rando, W-I-L-L-I-A-M, R-A-N-D-O.
22 BY MR. SALVATORE:
23 Q. Good afternoon, Dr. Rando. By whom are
24 you employed?
25 A. The University of Chicago.

1 Q. When did you begin working for the
2 University of Chicago?
3 A. Three years ago, March 1st.
4 Q. So that's 2014?
5 A. That's right.
6 Q. What is your job title or titles at the
7 University of Chicago?
8 A. I'm associate dean in the college and
9 the associate director in the Chicago Center for
10 Teaching.
11 Q. And have you held those positions the
12 entire time you've been employed by the University
13 of Chicago?
14 A. Yes.
15 Q. What's your educational background,
16 Dr. Rando?
17 A. I have a BA in English and -- from
18 Boston college and an MA and PhD from Northwestern
19 University.
20 Q. What subject is your master's degree in?
21 A. My master's degree is in rhetoric and my
22 PhD is in education.
23 Q. Where did you work just before coming to
24 the University of Chicago?
25 A. Prior to coming to the University of

1 Chicago, I worked at Yale University for 15 years.
2 Q. What did you do at Yale University?
3 A. Well, when I came there, I founded
4 something called the Graduate Teaching Center which
5 was in the graduate school of arts and sciences
6 which later became the Yale Teaching Center in my
7 last three years at Yale, because in addition to
8 working with graduate students we were working with
9 so many faculty it didn't make sense for us to be
10 called a graduate teaching center anymore.
11 Q. What was the purpose of the Yale Center?
12 MS. AUERBACH: Objection. Relevance.
13 THE HEARING OFFICER: I'm assuming this
14 is leading into the CCT.
15 MR. SALVATORE: It certainly is.
16 THE HEARING OFFICER: I'll allow it.
17 You can answer.
18 BY THE WITNESS:
19 A. It was a -- I guess typical center for
20 teaching and learning. The purpose was to advance
21 the teaching of anyone who taught at Yale.
22 Initially when it was the Graduate Teaching Center
23 focused on graduate student teaching, and
24 eventually, when it became the Yale Teaching
25 Center, anyone who teaches at Yale.

1 BY MR. SALVATORE:
2 Q. What is the Chicago Center for Teaching?
3 A. Chicago Center for Teaching is the same.
4 It's a traditional university center for teaching
5 whose purpose is to advance the skills of teaching
6 among anyone who teaches at the University of
7 Chicago.
8 Q. Is there an acronym typically associated
9 with the Chicago Center for Teaching?
10 A. Yes. CCT which we can use that.
11 Q. The CCT?
12 A. The CCT.
13 Q. When you say it advances teaching, what
14 do you mean by that specifically?
15 A. Well, a number of things. In some cases
16 it can mean -- I mean, because teaching is advanced
17 in a lot of different ways. Sometimes it means
18 having access to the latest research on teaching
19 and learning. Sometimes it means simply having a
20 community of people to talk about what's going on
21 in the classroom. Or sometimes it means being
22 introduced to models of teaching that allow one to,
23 say, reach students who you couldn't reach before.
24 It also just involves the sharing of perspectives
25 and best practices around everything from teaching

1 seminars to designing courses. So that's what I
2 mean when I say that.
3 Q. How long has the CCT been in existence?
4 A. Well, the CCT in its current name came
5 into existence three years ago when I arrived.
6 Prior to that there was a center called the Center
7 for Teaching and Learning which I think had been
8 around -- I don't know -- around 15 years. Yeah,
9 15.
10 Q. And where in the organizational
11 structure of the University of Chicago does the CCT
12 fall?
13 A. It falls in the provost office.
14 Q. At the time you were hired, did you have
15 a mandate for the CCT or did you develop one?
16 A. I would say both in a way. At the time
17 that I was hired and I was hired by two -- well,
18 two people were very much involved in my hiring.
19 One was a deputy provost, Debbie Nelson, and the
20 other was the dean of the college. And basically
21 what they told me is they wanted to really expand
22 their efforts to support teaching on campus. So
23 that was the mandate to start with.
24 And then since then because it's my
25 understanding that how one does that or what that

Page 749

1 means is very campus or context dependent. Since
2 then I think a deeper and more specific mandate has
3 emerged.
4 (Employer No. 33 was marked.)
5 Q. Let me show you, Dr. Rando, what has
6 been marked Employer No. 33.
7 A. Yes.
8 Q. Have you seen this document before?
9 A. Yes, I have.
10 Q. What is Employer Exhibit 33?
11 A. It seems to be a printout from the CCT
12 website having to do with the mission.
13 Q. The mission of the CCT?
14 A. Correct.
15 Q. And did you draft this mission?
16 A. Yes. With my -- in collaboration with
17 the rest of the other members of my staff.
18 Q. Does Exhibit 33 appear accurate to the
19 best of your knowledge, information and belief?
20 A. Yes.
21 Q. Is it a document kept in the ordinary
22 course of business?
23 A. Yes.
24 Q. By the University of Chicago?
25 A. Yes.

Page 750

1 MR. SALVATORE: We move it into
2 evidence.
3 MS. AUERBACH: No objection.
4 THE HEARING OFFICER: Employer
5 Exhibit 33 is received.
6 MR. SALVATORE: Thank you.
7 BY MR. SALVATORE:
8 Q. Dr. Rando, what do you understand the
9 mission statement that you wrote to mean when it
10 says "its aim is to promote teaching as a scholarly
11 practice"?
12 A. Well, I think, you know, this in some
13 ways is what I referred to before which is that --
14 it means a couple of things.
15 Number one, there is a literature
16 on teaching and learning which, if attended to, can
17 really enhance or widen or deepen once's ability to
18 teach.
19 The other thing is that like other
20 elements of scholarship which are often and by
21 necessity the subject of conversation and debate
22 and, you know, peer review for example, part of our
23 work is to bring teaching out from behind closed
24 doors and allow it to be more a part of scholarly
25 life.

Page 751

1 Lastly, like all scholarly work, it
2 is best done in a process of iterative reflection,
3 and it is not simply an element of just pure
4 practice in other words.
5 So that's what I mean -- that's
6 what we mean when we say making teaching part of
7 scholarly practice.
8 Q. Grad students are eligible to
9 participate at the CCT, correct?
10 A. Correct.
11 Q. And how does teaching as a scholarly
12 practice impact grad students at the university?
13 A. That's a big question. From my
14 perspective -- and this is true of graduate
15 students and anyone who teaches frankly. It's that
16 looking at teaching as scholarly practice. It's
17 kind of a necessary part of developing as a
18 scholar. You know, getting out of this modality of
19 research versus teaching which -- and I think -- I
20 just think -- I think it's a healthier and more
21 productive scholarly academic stance to see -- to
22 approach teaching with some of the same scholarly
23 methods that one approaches research. I don't know
24 if I answered your question.
25 Q. When you came to the University of

Page 752

1 Chicago three years ago, did you establish a model
2 for the CCT in terms of how it would be executed?
3 A. Yeah.
4 Q. Tell us about that model.
5 A. Obviously I had been at Yale for
6 15 years. Also, by that time I was part of a group
7 that had established quite a robust, what we call,
8 an ivy-plus group, the directors of all the centers
9 in the ivy league.
10 So in other words, I had access
11 either through my own work or through the work of
12 my colleagues to what is possible to do, but as I
13 mentioned earlier, in my experience this kind of
14 work is best done in conjunction with the culture
15 of the place.
16 So in my first year there were some
17 things that were already going on and that was
18 good, but before I made any bold choices about how
19 to add in all of this stuff, I was kind of all over
20 campus and learning about it. What I came up with
21 as a model for the campus is this -- and I should
22 also say that I also chose to focus primarily on
23 teaching by graduate students first and then -- and
24 some work with faculty and then add the rest of the
25 faculty work later which we're in the process of

Page 753

1 doing now. But the model for graduate teaching
2 that we came up with looked something -- I'll just
3 kind of -- it's pretty simple. To my mind it
4 mirrors the -- as closely as possible the teaching
5 experience -- the teaching experience of a lot of
6 graduate students.

7 So it's basically a five-stage
8 model which is orientation, fundamentals, skill
9 development, teaching your own class and launching,
10 all right? And so what I looked at in that first
11 year is what we were currently doing and where we
12 were doing a lot and then filling in where we were
13 doing less and trying to ultimately create a
14 program so that if you're a graduate student and
15 you're teaching, there is something there for you
16 at every stage in the process.

17 Q. So let's just go through the stages real
18 quickly and give us two sentences about each one.
19 You said orientation. I assume that's orientation
20 to teaching is the first one?

21 A. Correct. Not orientation to the
22 University of Chicago. So basically, kind of,
23 helping or assisting graduate students in two
24 things.

25 One is making the transition from

Page 754

1 student to teacher and the other is gaining some
2 knowledge about how the teaching works in different
3 disciplines and different divisions, how teaching
4 works. So that's orientation. Just a kind of
5 where am I.

6 Q. The second was developing fundamental
7 teaching skills?

8 A. That's right. To me, most places
9 don't -- I think this is a really important place
10 to focus, which is the first time you're actually
11 in the classroom. Not before you're in the
12 classroom but while you're in the classroom for the
13 first time and you're starting to have all these
14 observations of what it's like to have 12 students
15 or whatever. It's not something you can anticipate
16 and so what -- so that's where we focus on what we
17 call fundamentals.

18 Q. Number three was teaching advanced
19 skills. What does that mean specifically?

20 A. So for many graduate students they will
21 then TA a number of times and it's at this point
22 that folks have the basics down. Their confidence
23 is good, but there's still a lot more to learn,
24 learning about diversity and inclusion, learning
25 about effective lecturing and explaining, using

Page 755

1 small groups, collaborative learning, techniques
2 for grading. All of these kinds of things that
3 there's a lot to learn about, so that's skill
4 development stage three.

5 Q. Stage four I think you said was learning
6 to teach your own course?

7 A. Yes. So for some graduate students,
8 certainly many more than was the case at Yale, they
9 have an opportunity to teach their own class.
10 So -- and this is another big transition to go from
11 being a TA to suddenly having your own class. And
12 there's a lot to be learned there too. So we
13 develop -- you know, I can talk more about it, but
14 we have a whole program for that.

15 Q. And the final, the fifth stage or the
16 fifth step was launching and I assume that's
17 launching from grad student into being a professor?

18 A. That's right. So -- I mean, ideally we
19 try to start talking about launching from the very
20 beginning simply because there's a lot of good
21 reflection to be done even from the very start, but
22 the truth of the matter is at some point graduate
23 students, some of them, go on the academic job
24 market, and in today's market that means developing
25 of materials that have to do with teaching and --

Page 756

1 so we have a whole program that deals with that.
2 So that's it. Those are the five.

3 Q. Is this five-point model still in effect
4 at the CCT?

5 A. It is. It's one of the things that we
6 use. Not the only rubric that we use, but it's one
7 of the rubrics that we use when we are doing our
8 planning over the summer. We look back at the year
9 before and say, where are we doing a lot? Where
10 are we doing a little? And where are we doing
11 more?

12 (Employer No. 34 was marked.)

13 Q. And speaking of looking back over the
14 summer, I show you what's been marked as Exhibit
15 No. 34. Have you seen that document before?

16 A. Yes, I have.

17 Q. What is Employer Exhibit No. 34?

18 A. This is the Chicago Center for Teaching
19 Annual Report from last June, summer of 2016.

20 Q. Were you involved in the writing of this
21 document?

22 A. Yes, I was.

23 Q. And take a look at it. Is it complete
24 and accurate to the best of your knowledge,
25 information and belief?

1 A. To the best of my knowledge without
 2 going line by line this looks like it.
 3 Q. Is this a document that's kept in the
 4 ordinary course of business by the University of
 5 Chicago?
 6 A. Yes.
 7 MR. SALVATORE: We move Exhibit 34 into
 8 evidence.
 9 MS. AUERBACH: No objection.
 10 THE HEARING OFFICER: Employer
 11 Exhibit 34 is received.
 12 BY MR. SALVATORE:
 13 Q. Dr. Rando, are there points you want to
 14 highlight in the 2016 annual report in the Chicago
 15 Center for teaching, the CCT?
 16 A. I guess so. You know, it's the report
 17 from 2016 but as anyone who -- if you look at it,
 18 you'll notice one of the primary things that it
 19 does is to compare the year before to the current
 20 year, okay? To see, or to show in this case
 21 because it goes to the provost what changes are
 22 happening as a result of the -- you know, both as a
 23 result of the programs we're doing, but also in the
 24 programs that we're doing to what extent are they
 25 being received well or poorly and that kind of

1 the fact that earlier that year -- or the year
 2 before we had started a fellows program and it too
 3 had grown into a central part of what it means to
 4 be in the CCT. I'm going to talk about that a
 5 little bit more later.
 6 The last two things which I will
 7 just highlight. In that last summer we became part
 8 of a network which is known as the Scientific
 9 Summer Teaching Institute and -- which is an HHMI
 10 funded grant run out of Yale University.
 11 THE HEARING OFFICER: What does HHMI
 12 stand for?
 13 BY THE WITNESS:
 14 A. Howard Hughes Medical Institute.
 15 THE HEARING OFFICER: Thank you.
 16 BY THE WITNESS:
 17 A. Yep. And we ran a one week or four or
 18 five day summer institute on STEM teaching last
 19 summer. These institutes happen at three or four
 20 other universities over the summer and University
 21 of Chicago was added to that list and we actually
 22 ended up having the largest summer institute that
 23 had ever been held here and we're going to do it
 24 again this summer.
 25 The important thing is how this

1 thing.
 2 You know, I would say for this
 3 report, again, which came out somewhere in the last
 4 year, if you look at the section on new
 5 opportunities which is on the first page under the
 6 overview, you know, these were the kind of the
 7 highlights and things that I'm happy to say have
 8 continued to be viable concerns and useful for
 9 primarily graduate students.
 10 So let me just talk about those a
 11 minute. The first one is the college teaching
 12 course -- course design in college teaching is the
 13 full name of the course. And, you know, in its
 14 short history, which I can now update you a bit,
 15 it's gone from 22 students in the fall -- 22
 16 students in the fall and 22 students in the spring
 17 to this past spring we've expanded the course to 40
 18 students and next year we're going to teach it
 19 three times, fall, winter and spring because every
 20 year it's highly oversubscribed. It seems to be
 21 meeting an important need in this sort of step
 22 forth about to teach your own class. So that was
 23 exciting then. It's even more exciting now.
 24 The fundamentals of teaching which
 25 were also started that year were made possible by

1 institute has connected Chicago -- University of
 2 Chicago to a really vibrant national network of
 3 STEM -- in STEM education which is continuing to
 4 benefit us throughout the year. So that was big
 5 news and continues to be.
 6 And then the last thing is that we
 7 had started a -- we decided we wanted to focus on
 8 teaching in the core which is, you know, something
 9 that graduate students do, lecturers do, faculty
 10 do. It's an incredible incubator for thinking
 11 about teaching because it involves people at all
 12 stages in their career and we held the first
 13 orientation to the core. We didn't know if it was
 14 going to go, if people would be interested in
 15 exploring what is the goal -- what are its goals,
 16 why do we do it, how do we teach in the core, but
 17 it turned out that while all new core teachers were
 18 invited it ended up being standing room only. And
 19 many people who had been teaching in the core for
 20 years decided to come and talk about what is the
 21 core, why do we do it, how do we do it. So I think
 22 we're on to something there. We're going to do it
 23 again next year. Those are some things I want to
 24 highlight.
 25 Q. You mention that the CCT serves graduate

1 students?
 2 A. Yes.
 3 Q. Faculty?
 4 A. Yes.
 5 Q. Now, to what extent does it serve master
 6 students, if at all?
 7 A. Master students. We don't serve master
 8 students that much, which is to say we don't have
 9 that much to offer master students because very,
 10 very, few master students actually teach at the
 11 University of Chicago. And most -- I think you can
 12 see all of our programming is designed for people
 13 who are in the classroom or are going to be in the
 14 classroom tomorrow. So that said, you know,
 15 they're invited to come to anything that we do, and
 16 they do occasionally. Sometimes people are just
 17 interested.
 18 For example, I think we have master
 19 students who come to some of our programs on
 20 diversity and inclusion. You know, they may not be
 21 interested in it necessarily from a teaching point
 22 of view, although they might be, but they're just
 23 interested in the topic or they're looking for a
 24 community or whatever. So they come. But to say
 25 that we -- it would be incorrect to say that we

1 Q. Dr. Rando, in my questioning I'm going
 2 to try to follow your five-point model. The CCT's
 3 course and program offerings, why don't we start
 4 with step one, the orientation to teaching.
 5 Does the CCT offer a program called
 6 Teaching at Chicago?
 7 A. Yes.
 8 Q. What is that program?
 9 A. Well, it is, in sum, an orientation to
 10 teaching for -- this is a program that we are
 11 continuing to refine. It'll be a little different
 12 next year, so I'm going to talk about what it was
 13 the last time we did it.
 14 The last time we did it it's an
 15 orientation. It lasts two days. The first day is
 16 for people who are new TAs or interns or CAs and
 17 the second day is for people -- is an orientation
 18 for people who are teaching their own class for the
 19 first time, so lecturers and things of that nature.
 20 As I mentioned before, the purpose
 21 is to help graduate students make the transition
 22 from student to teacher and give them a place to
 23 get their questions answered, because there's a lot
 24 of questions. So it basically consists of a couple
 25 of plenaries, plenary sessions with everyone

1 serve master students in any substantial way. We
 2 just don't.
 3 Q. So does the CCT have a full-time staff?
 4 A. Yes.
 5 Q. How does it staff?
 6 A. Well, I'm the director. There are two
 7 associate directors. Do you want their names or
 8 just kind of their positions?
 9 Q. Their positions.
 10 A. So there are two associate directors.
 11 One who is primarily in charge of humanities and
 12 associate sciences and the other who is -- whose
 13 primary responsibility is STEM education. We then
 14 have one full-time assistant director who has a
 15 variety of responsibilities but from a -- sort of
 16 from a content point of view is our primary point
 17 person on diversity and inclusion. And then we
 18 have a three-quarter time person who -- some of her
 19 work is devoted to working with our fellows, but
 20 her primary role has been to organize and lead the
 21 midwest faculty seminars which is another program
 22 that we do. And then we have a full-time program
 23 coordinator who coordinates our efforts, helps us
 24 with things like data collection and things of that
 25 nature.

1 together, some breakout sessions on kind of getting
 2 started in the classroom which are organized by
 3 division, and then the third thing -- the third
 4 thing is an opportunity -- we invite faculty
 5 members from every department and we always
 6 get -- and they come to have lunch with the new TAs
 7 in their department. So a little chance to find
 8 out what the local culture is and ask any other
 9 questions. And the last piece that we just added
 10 two years ago is an undergraduates panel where
 11 undergraduates talk about their experience with TAs
 12 and what has been useful for them. It's really
 13 orientation. I would say there's a slight training
 14 or skill development component but mostly it's
 15 about, you know, conceptual understanding and
 16 confidence and having a sense that, yeah, this is
 17 something that I can do.
 18 Q. Now, that happens over two days?
 19 A. Correct.
 20 (Employer No. 35 was marked.)
 21 Q. Let me show you what's been marked as
 22 Employer Exhibit Number 35. Have you seen that
 23 document before?
 24 A. Yes.
 25 Q. What is Employer Exhibit 35?

1 A. It seems to be a -- some kind of -- oh,
 2 a printout of the Teaching at Chicago page on the
 3 CCT website.
 4 Q. Have you seen Exhibit 35?
 5 A. Yeah. Yeah. A more web friendly
 6 version, but yes.
 7 Q. And does it look like a true and
 8 accurate document to the best of your knowledge,
 9 information and belief?
 10 A. Yes.
 11 Q. Is it a document that's kept in the
 12 ordinary course of business by the University of
 13 Chicago?
 14 A. Yes.
 15 MR. SALVATORE: We move Exhibit 35 into
 16 evidence.
 17 MS. AUERBACH: No objection.
 18 THE HEARING OFFICER: Employer
 19 Exhibit 35 is received.
 20 BY MR. SALVATORE:
 21 Q. Dr. Rando, let's go to step two. After
 22 orientation to teaching, step two of the CCT model
 23 is -- as I understand, to help develop the
 24 fundamental teaching skills of those that are
 25 participating?

1 of graduate students. And so we've had
 2 fundamentals of teaching in English and history and
 3 psychology.
 4 Here again we're still -- we get
 5 feedback on these -- some of these little seminars
 6 and we're tweaking them and trying to figure out
 7 how best to do them but that's what they are.
 8 (Employer No. 36 was marked.)
 9 Q. Let me show you what's been marked as
 10 Employer 36 for identification. Have you seen this
 11 document before?
 12 A. Yeah. This is definitely a printout of
 13 the CCT page on the fundamentals.
 14 Q. From the website?
 15 A. From the website. Thank you.
 16 Q. Looking through it is this true and
 17 accurate to the best of your knowledge, information
 18 and belief?
 19 A. Um-hum.
 20 Q. And kept in the ordinary course of
 21 business by the University of Chicago?
 22 A. Yes.
 23 MR. SALVATORE: I move Exhibit 36 into
 24 evidence.
 25 MS. AUERBACH: No objection.

1 A. Right.
 2 Q. And are you familiar with something
 3 called the fundamentals of teaching workshop?
 4 A. Yes.
 5 Q. What is that?
 6 A. It's actually what are they.
 7 Q. Okay.
 8 A. So every year, I guess this will be
 9 coming up the third year we did this. What they
 10 are is an opportunity for first time teachers to
 11 meet with peers as well as a facilitator who is a
 12 fellow in the CCT for a few weeks during the first
 13 few weeks of the class. I had mentioned this -- to
 14 me I think this is a very important moment in
 15 learning to teach. You're in the class for the
 16 first time. Things are happening. Students are
 17 doing things. And it's important to have a group
 18 to communicate with, ask questions of and explore
 19 ideas.
 20 So we organize a series of these
 21 small groups based primarily on division. So we
 22 have fundamentals of teaching in STEM, fundamentals
 23 of teaching in social sciences, fundamentals in
 24 teaching -- you get it but then we also offer some
 25 fundamentals in departments that have large numbers

1 THE HEARING OFFICER: Employer
 2 Exhibit 36 is received.
 3 BY MR. SALVATORE:
 4 Q. Are we now getting into step three of
 5 the CCT model?
 6 A. Yeah, so developing skills.
 7 Q. Teaching advanced skills?
 8 A. Well, yeah. Yeah. That's right.
 9 Learning and practicing and experimenting with
 10 advanced skills.
 11 Q. What are the offerings of the CCT in
 12 this area?
 13 A. Well, here it's -- right now it's
 14 more -- the offerings come from a lot of different
 15 places, okay? So I'll -- I'll just mention a few
 16 of them. Members of our full-time staff, for
 17 example, do workshops on things like -- so one
 18 topic might be diversity and inclusive teaching.
 19 That's one source of workshops on advanced skills.
 20 Another source is that the fellows
 21 that I mentioned earlier, in addition to after in
 22 the fall when they led the fundamentals seminars,
 23 in the winter and spring they offer workshops or
 24 sometimes workshop series and these can take a
 25 number of forms. One is that they can be very

1 department based. So a couple of workshops, for
2 example, for historians, for teaching history or a
3 couple of workshops for teaching anthropology or a
4 series. But they can also -- in which case they're
5 dealing with a number of topics moving more closely
6 to teaching in that particular discipline. But
7 they can also be workshops or speakers, whatever,
8 on general topics, topics of interest to a general
9 audience such as effective lecturing, using small
10 groups in the classroom, getting better feedback,
11 mentoring skills. So between the fellows and what
12 happens from the staff, there are these things that
13 are kind of going on and off all year long.

14 The last thing I want to say about
15 this, the other place where this process occurs is
16 in our individual consultations. Actually, I have
17 two more. So one is the individual consultations
18 which many -- which graduate students tend to take
19 advantage of not necessarily in their first quarter
20 teaching but in their second, third or fourth. You
21 know what I mean? And in those consultations new
22 skills are developed, new practices are developed.

23 The other place is in members of --
24 myself and members of the staff are often invited
25 to departments who might be running their own

1 series or some version of a series and we will get
2 invited to come in and talk about some advance
3 topic in teaching and learning.

4 So as you can see, it's kind of --
5 this section of the model is quite diverse and
6 quite -- it's less structured than the others which
7 I think is actually fine for now as we learn about
8 what works and what's popular and what's useful in
9 all those things. So that's that.

10 Q. So let's go to step four which you
11 described, learning to teach your own course. Are
12 you familiar with the college teaching courses?

13 A. Yes.

14 (Employer No. 37 was marked.)

15 Q. Let me show you what's been marked as
16 Exhibit 37. Have you seen that document before?

17 A. Yes, I have.

18 Q. What is Exhibit 37?

19 A. It seems to be a printout from the CCT
20 website having to do with the course design and
21 college teaching course.

22 Q. Which is the course that the CCT offers
23 that relates to your step four, learning to teach?

24 A. Teaching your own class.

25 Q. Teaching your own class. I'm sorry.

1 A. No worries.

2 Q. You said this is from the website. Does
3 this look accurate to the best of your knowledge,
4 information and belief?

5 A. Yeah.

6 Q. Is it kept in the ordinary course of
7 business by University of Chicago?

8 A. Yes.

9 MR. SALVATORE: We move it into
10 evidence, Exhibit 37.

11 MS. AUERBACH: No objection.

12 THE HEARING OFFICER: Employer
13 Exhibit 37 is received.

14 BY MR. SALVATORE:

15 Q. So let's talk about the course design in
16 college teaching course offered by the CCT. What's
17 its content essentially?

18 A. Well, the content -- so first of all,
19 it's a quarter long course that meets two hours
20 every Friday, plus people in the course meet in
21 smaller groups almost like a section. Actually,
22 like a section to work on things that are more
23 disciplinary or at least divisional based, okay?

24 The content of the course is --
25 basically what the course does is it takes students

1 through the process of designing the college
2 course. And so -- and it highlights some of the
3 keys -- sort of structural principles of course
4 design, backward design, alignment, assessment. It
5 has a diversity inclusion component. There are
6 lots of opportunities to think about the kinds
7 of -- the kinds of activities and the kinds of
8 structured activities that actually help people
9 learn. It's designed in a way so that by the time
10 people finish they -- they are in a
11 better -- they're in a better position to actually
12 have students achieve the things that they want
13 them to achieve right. So it's -- that's what it's
14 about.

15 Q. You say this is a course. Are students
16 graded on a pass/fail scale basis?

17 A. Correct.

18 Q. How many times has the course been
19 offered?

20 A. Four.

21 Q. Has it been a popular course with
22 graduate students?

23 A. Well, yes. So each time it's been
24 offered there's been a wait list and the wait list
25 instead of getting smaller is getting larger. You

1 know, word of mouth, things become a little bit
2 more established. So this past fall we expanded
3 the size from 22 to 40 and we still have a wait
4 list. So next year we're going to teach it three
5 times, fall, winter and spring, with 40 students in
6 each course. What we're trying to do is get that
7 wait list down so that people can take this when
8 they want to take it and when it makes sense for
9 them.

10 Q. This isn't a required course for grad
11 students?

12 A. No.

13 Q. Grad students volunteer to take it?

14 A. Yeah. Yeah. I mean, it's really
15 helpful if you're about to teach your own class.
16 Not only the content but just having, you know,
17 this community of people who are trying to do the
18 same thing you are and trying to be able to do
19 course design with them, I, think is pretty useful.
20 So that's that.

21 Q. Does the CCT offer a college certificate
22 in college teaching?

23 A. Yes.

24 (Employer No. 38 was marked.)

25 Q. I show you what's been marked as

1 Employer Exhibit No. 38. I ask you to take a look.
2 Have you seen it before?

3 A. Yes.

4 Q. What is it?

5 A. This seems to be a printout from the CCT
6 website having to do with the certificate in
7 college teaching.

8 Q. Flipping through it does it look like an
9 accurate printout from the website to the best of
10 your knowledge, information and belief?

11 A. Yes.

12 Q. And kept in the ordinary course of
13 business by the University of Chicago?

14 A. Yes.

15 MR. SALVATORE: We move Exhibit 38 into
16 evidence.

17 MS. AUERBACH: No objection.

18 THE HEARING OFFICER: Employer
19 Exhibit 38 is received.

20 BY MR. SALVATORE:

21 Q. Tell us about the CCT college teaching
22 certificate program, Dr. Rando, please?

23 A. Well, I mean -- so certificate programs
24 have become something of a staple in universities.
25 There's some variation in how they look, but they

1 all look pretty much the same. They have, as part
2 of their requirements, the workshops and other
3 offerings and you have to -- the idea is to receive
4 a certificate you have to complete a certain number
5 of those things.

6 So I developed -- the first
7 certificate that I developed was at Yale, and you
8 know, my sense was -- and there are two real
9 reasons for having it. Maybe the most, you know,
10 obvious is the kind of sort of credentialing
11 element to it, of course, but it's important to
12 remember this is not a certificate of teaching
13 excellence. We don't do that. We have no way
14 of -- it's simply a certificate. It says to
15 somebody who might care, such as an Employer, that
16 while I was a graduate student I took part in these
17 things. I made good use of my time. That's
18 basically what it says, and that's a nice thing to
19 have. Different people have different opinions
20 upon whether having this certificate actually
21 matters. You know, a few people say it hurts, but
22 to me the bigger reason for having it is, as you
23 can tell, we offer a bunch of different things and
24 they pop up at different times and they're useful
25 at different times. And graduate -- and you know,

1 unlike other elements of graduate education it's
2 hard to keep track of.

3 And so from my purposes -- the real
4 purpose of certificate is to provide something of a
5 road map, a curriculum that says, okay, so, you
6 know, I'm going to be teaching here for the next
7 four, five years. Oh, I see. So I'll do this
8 then. This then. This then. This then. Good. I
9 don't have to decide this anymore. It's kind of
10 laid out. So that's what the certificate is.

11 Q. Would it be included in some way on the
12 student's transcript?

13 A. Yes.

14 Q. What would that marking be?

15 A. If would be a notation, a transcript
16 notation.

17 Q. That they completed the --

18 A. Correct, the college teaching
19 certificate.

20 Q. From the University of Chicago Center
21 for Teaching?

22 A. That's correct. I mean, the other thing
23 that's nice is if you've done this, which means
24 you've put all this time into teaching, now this is
25 sitting on your certificate -- you put it on your

1 CV as well, that somebody who is interviewing you
 2 can say, tell me about this. That's good.
 3 Q. It's a conversation starter, on a job
 4 interview?
 5 A. That's well put. It's a conversation
 6 starter on a topic that graduate students can speak
 7 about well and that people want to know about.
 8 Q. Have you done a version of this college
 9 teaching certificate for language instructors?
 10 A. Well, that's an interesting question
 11 because I don't know if -- the language fields have
 12 a long and really interesting history in thinking
 13 about pedagogy. The whole second field of language
 14 is impressive for reasons that I probably don't
 15 have to explain. Just the process of teaching
 16 languages is quite complicated and involved.
 17 So -- but at the time there was no
 18 certificate in teaching language so the director of
 19 the Chicago Language Center came to us and said,
 20 listen, can we combine forces here. We're doing
 21 some things -- because they do a lot over there --
 22 and you do some things and let's put a program
 23 together and create a college teaching certificate
 24 in language. That was -- I think that was a nice
 25 move on our part.

1 Q. What does it describe?
 2 A. It's a printout from the CCT website
 3 having to do with a teaching consultants program,
 4 or what we sometimes call the TC program.
 5 Q. Tell us what the TC program is?
 6 A. Well, the TC program is interesting. It
 7 actually predates me. It was a big part of the
 8 former center, but what it is, it's a program
 9 that -- in which we recruit and train advanced
 10 graduate students, people who are interested in
 11 teaching, who maybe want to keep their hand in.
 12 Maybe they're not teaching anymore or just want to
 13 get back, you know, to be part of that. So it's a
 14 program that we recruit and train advanced graduate
 15 students who then give individual consultation and
 16 observation to other graduate students. Usually
 17 people who are more junior than they are, but not
 18 always actually. So that's what it is.
 19 Q. About how many of those teaching
 20 consultations go on in an average year?
 21 A. I think -- oh, shoot. I don't remember.
 22 Q. Well, don't guess.
 23 A. It might even be in the data somewhere,
 24 but it's a couple hundred, I think.
 25 Q. How many teaching consultants are there

1 (Employer No. 39 was marked.)
 2 Q. I'm going to show you what's been marked
 3 as Employer Exhibit 39. I ask you to take a look
 4 at it. Tell me if you recognize it.
 5 A. Yes. This is a printout from our
 6 website having to do with the certificate and
 7 second language pedagogy.
 8 Q. Does it look like a true and accurate
 9 printout from the website?
 10 A. It does.
 11 Q. Is it a document that's kept in the
 12 ordinary course of business by the Chicago of
 13 University?
 14 A. Yes, it is.
 15 MR. SALVATORE: We move Exhibit No. 39
 16 into evidence.
 17 MS. AUERBACH: No objection.
 18 THE HEARING OFFICER: Employer
 19 Exhibit 39 is received.
 20 (Employer No. 40 was marked.)
 21 BY MR. SALVATORE:
 22 Q. Let me show you what's been marked as
 23 Exhibit No. 40, Dr. Rando. Take a look at it,
 24 please. Have you seen Exhibit No. 40 before?
 25 A. Yes, I have.

1 approximately?
 2 A. Right now we have about 20, so they're
 3 kind of on call. They get paid every time they do
 4 a consultation.
 5 MR. SALVATORE: I don't believe I moved
 6 Exhibit 40 into evidence.
 7 MS. AUERBACH: No objection.
 8 THE HEARING OFFICER: Employer
 9 Exhibit 40 is received.
 10 BY MR. SALVATORE:
 11 Q. Are you familiar, Dr. Rando, with the
 12 CCT fellows program?
 13 A. Yes.
 14 (Employer No. 41 was marked.)
 15 Q. Let me show you what's been marked as
 16 Exhibit 41. Have you seen Exhibit 41 before?
 17 A. Yes.
 18 Q. What is it?
 19 A. It is a printout from the web
 20 page -- from the CCT web page about the CCT fellows
 21 program.
 22 Q. Tell us what the CCT fellows program is,
 23 please.
 24 A. So this is new as of my coming here.
 25 You know, it's funny. It's one of the things that

Page 781

1 I did bring with me from Yale because it was
2 such -- it was a really effective program there and
3 I think it's starting to become that here, too.
4 So the fellows -- so each spring we
5 put out a call to graduate students to become a CCT
6 fellow which means for a year, for the coming year,
7 being a part of the CCT and being a part of this
8 group of fellows of which there are 15 or 16 and
9 doing a couple of things. Number one is being
10 trained. Getting more pedagogical training,
11 getting more training in facilitation and running
12 workshops and discussion leading and then using
13 those skills and that training to run workshops or
14 design programs for other graduate students on
15 campus, particularly those in your division or your
16 department.
17 So to me being a CCT fellow is, you
18 know -- what we're hoping is that it is kind of a
19 capstone experience for those graduate students at
20 Chicago who have really been involved in sort of
21 their own pedagogical development, and you know,
22 this is a place for them -- for people in that
23 situation to really get some great practice and
24 some great experience. So that's what it is.
25 Q. Does Exhibit 41 explain that?

Page 782

1 A. I think so.
2 Q. This comes off the website?
3 A. Yes.
4 Q. It's accurate to the best of your
5 knowledge and belief?
6 A. Yes.
7 Q. Kept in the ordinary course of business
8 by the University of Chicago?
9 A. Yes.
10 MR. SALVATORE: We move Exhibit 41 into
11 evidence.
12 MS. AUERBACH: No objection.
13 THE HEARING OFFICER: Employer
14 Exhibit 41 is received.
15 BY MR. SALVATORE:
16 Q. So Dr. Rando, I think we're up to step a
17 five of the CCT model, launching into the academic
18 world.
19 Does the CCT get involved in what
20 you describe as launching? What do you mean by
21 that?
22 A. So, you know -- yes. The answer to your
23 question is, yes, we do. And as I mentioned
24 earlier, in today's academic market applying for
25 jobs, getting jobs, getting ready for interviews,

Page 783

1 academic interviews means preparing not only
2 yourself but preparing documents and documentation
3 the same way.
4 So today instead of simply needing
5 a CV and a writing sample you need a CV -- in many
6 cases a CV, a writing sample, a statement of
7 teaching and possibly you might be asked to submit
8 a formal portfolio -- teaching portfolio.
9 So we offer, every quarter,
10 seminars and workshops on teaching portfolios. I
11 think it might come up in the course design course
12 a little bit, but I'm not sure. It's interesting
13 because this idea of launching kind of permeates
14 everything we do because when you first start
15 teaching, it's important to know that some day,
16 three, four years down the line this is what you're
17 going to be asked to do. So we do these workshops.
18 We do a lot of workshops on teaching portfolios
19 within departments. We get asked to come in and
20 talk about it.
21 And the other thing is a lot of
22 one-on-one consultations. So members of my staff
23 do teaching statement review and portfolio review
24 and it's a big part of what we do.
25 Q. So a grad student who is going to

Page 784

1 graduate and go out in the job market will come in
2 and have someone on your staff review their
3 materials and help them get ready to go out into
4 the market?
5 A. Exactly. I mean, the first step is
6 informing people what are the materials? What does
7 it even mean to put together a portfolio? What
8 goes in? What goes out? How do you do it? And
9 then once the person has a draft, we start working
10 with drafts, yeah.
11 Q. Dr. Rando, it seems like the CCT is
12 involved in the entire life cycle of teaching
13 pedagogy to grad students.
14 How is that working out, in your
15 view, during the three years you've been at the
16 University of Chicago?
17 A. Well, you know, that's kind of how I
18 designed it. What we're trying to do is design a
19 program that is useful for graduate student
20 teachers at whatever stage of teaching they are.
21 So I would say that after, you know, we're starting
22 year four -- I'm starting year four. I think
23 we're -- I think it's really starting to take
24 shape, you know. We get it and how things are, and
25 I think little by little the model is starting to

1 become more apparent not only to graduate students
2 but to faculty as well. So that's kind of what
3 we're up to.

4 MR. SALVATORE: Thank you, Dr. Rando. I
5 have no further questions.

6 THE WITNESS: All right. Thank you.

7 MS. AUERBACH: Can I have a few minutes
8 off the record?

9 THE HEARING OFFICER: Sure. Off the
10 record.

11 (Whereupon, a break was taken,
12 after which the following
13 proceedings were had:)

14 THE HEARING OFFICER: On the record.
15 Petitioner can proceed with
16 questions for the witness.

17 CROSS-EXAMINATION

18 BY MS. AUERBACH:

19 Q. Dr. Rando, of all of the programs
20 offered by CCT that you've testified to, are any of
21 those programs things that grad students are
22 required to take?

23 A. Not by us. We don't require things.

24 Q. Are any of them grad students -- do you
25 know if grad students are required by any of their

1 department programs to take any of the programs?

2 A. Some departments do.

3 Q. And some departments don't?

4 A. Correct.

5 Q. Is it true that most departments do not
6 require their grad students to go to CCT?

7 A. I don't know about that.

8 Q. Do you know which departments do and
9 don't?

10 A. I don't.

11 Q. CCT offers programs for grad students
12 and tech members?

13 A. Correct.

14 Q. Post-docs are people who already have
15 their PhDs who are employed by the university?

16 A. Correct. Yes.

17 Q. Are there some programs that CCT offers
18 that are geared for faculty members rather than for
19 grad students and post-docs?

20 MR. SALVATORE: Objection. What's the
21 relevance to this?

22 MS. AUERBACH: The relevance that the
23 University provides teaching training not just for
24 grad students but for faculty to benefit the
25 university.

1 THE HEARING OFFICER: In the Employer's
2 exhibit there is some mention to faculty being
3 offered some training, and I would like to know
4 more about that.

5 So you can answer, Dr. Rando.

6 BY THE WITNESS:

7 A. Yes.

8 BY MS. AUERBACH:

9 Q. What types of programs does CCT offer
10 that are very specifically for faculty members and
11 not for grad students?

12 MR. SALVATORE: Objection. Now we're
13 getting beyond the scope of direct. The direct was
14 focused on the grad students. I specifically
15 didn't go into the faculty offerings in order to
16 expedite this proceeding. This proceeding
17 is -- the petitioner wants to expedite it yet wants
18 to go into discussion of faculty offerings. We
19 stipulate that the CCT offers faculty courses.
20 Period.

21 MS. AUERBACH: This is an investigatory
22 hearing so scope to cross and direct doesn't
23 strictly apply. It's the Union's position that the
24 good quality teaching advances the interest of the
25 university. It's relevant that this center does

1 not just offer training for grad students but also
2 for faculty as part of its purpose.

3 MR. SALVATORE: Okay. That's the
4 Union's argument. That's argument. That's not for
5 this witness. We've just stipulated that CCT
6 offers programs for faculty. Period.

7 MS. AUERBACH: Well, I think it's
8 relevant to what extent it is similar to what is
9 offered to grad students and the purpose why
10 they're offered. We don't agreed that they're
11 offered just to benefit the graduate students.

12 THE HEARING OFFICER: I'd like to know
13 the difference between the offerings for graduate
14 students as opposed to faculty. You can ask your
15 question again.

16 BY MS. AUERBACH:

17 Q. So what programs does CCT offer that are
18 specifically geared towards faculty rather than
19 graduate students?

20 A. So let me mention two in particular. So
21 in the humanities division -- and I think this
22 appears in the annual report. Faculty members on
23 the tenure track, new hires, as well as those who
24 are in their third or fourth year, have been
25 reappointed. There's a paragraph in the letter

1 that says they will be contacted by the CCT to talk
2 about their teaching. And that's all tenure track
3 faculty in the humanities. And so that has been
4 going on for two years. And someone in my senior
5 staff contacts each of these folks and often it
6 results in an observation like the ITCs that we do
7 for the graduate students, a consultation, an
8 observation and then a post-observation meeting.
9 So there's that.

10 The HHMI summer institute that I
11 just mentioned is also a faculty program. It isn't
12 primarily designed for graduate students.
13 Occasionally graduate students will come to it, but
14 it is a faculty program. So those are two.

15 I mentioned a third, which I did
16 mention in my testimony, which is that when we work
17 with the core, we are working with faculty, both
18 tenure and track lecturers, post-docs, and so in
19 that case everyone is going to the same thing.

20 Q. What do you do when you do work with the
21 core?

22 MR. SALVATORE: Objection. I don't know
23 what you mean with that question.

24 THE HEARING OFFICER: Are you referring
25 to Dr. Rando personally?

1 question again?

2 BY MS. AUERBACH:

3 Q. What work does -- what does CCT offer
4 with respect to the core in social sciences and
5 humanities?

6 THE HEARING OFFICER: You can go ahead
7 and answer, Dr. Rando.

8 BY THE WITNESS:

9 A. What we have offered for the past two
10 years and which we actually just planned again for
11 next is a more than half-day orientation to
12 teaching in the core. And what we do there for
13 everyone who attends which is faculty, post-docs
14 and graduate students, is try to open up a
15 conversation about what the core is, what are the
16 core learning goals, what are some of the
17 challenges, for example, teaching first-year
18 students, teaching -- when you teach in the core,
19 you're often teaching material that is not your
20 specialty by design. How do you do that? Why do
21 we do that? What is the purpose of it? That's
22 what that orientation is.

23 In addition, as a result of that
24 orientation, we will be invited to certain core
25 courses. So one of my colleagues in the CCT

1 MS. AUERBACH: The CCT. The last thing
2 you talked about was working with the core and
3 humanities.

4 MR. SALVATORE: Objection. I think she
5 put together three of his answers or two of his
6 answers.

7 THE HEARING OFFICER: So you're
8 referring specifically to the core training offered
9 for the humanities courses?

10 BY MS. AUERBACH:

11 Q. Well, let me ask him. When you
12 testified about the core work, was that just
13 humanities?

14 A. In this case it's the humanities and
15 social sciences core. Both.

16 Q. So what work do you do with the
17 humanities and social sciences? What does CCT
18 offer with respect to the core in social sciences
19 and humanities?

20 MR. SALVATORE: Objection. Asked and
21 answered. He covered this at, I think, an
22 appropriate level in his testimony on direct.

23 MS. AUERBACH: I'm asking him to expand
24 on what that involves.

25 THE HEARING OFFICER: Can you ask your

1 does -- every quarter does sessions in one -- two
2 sessions in one of the core is called PIR. That's
3 the name of the core and --

4 THE HEARING OFFICER: What does that
5 stand for?

6 BY THE WITNESS:

7 A. Hold on. Wait. Power, resistance,
8 identity. Power, identity and resistance. That's
9 what PIR stands for. It's a big social science
10 course. I don't think it's as big as several but
11 it's big.

12 So the point is that every quarter
13 he goes in and has conversations with the folks who
14 are teaching in that core course. So that's the
15 work that we do with the core. Again, it's just
16 getting started. And, in fact, we just had a
17 meeting about expanding what we're doing in PIR,
18 power, identity and resistance to other cores in
19 humanities and social sciences.

20 Q. Is that work you do with the core
21 intended to improve the quality of teaching in the
22 core classes?

23 A. It's designed to help the people who are
24 teaching in it. Teaching in the core is not easy.
25 It's not typical and it can be hard to do. It can

1 be hard to make sense of, so what we're trying to
2 do is to help the folks that are teaching in the
3 core figure out what to do and how to do it, how to
4 take these collection of books that may or -- that
5 are not of their choosing and turn them into a
6 course. It's quite a skill.

7 Q. One of the missions of the university is
8 to provide a high quality of education for the
9 undergraduates who attend the university, correct?

10 A. Correct.

11 Q. And improving the teaching skills of all
12 of those who teach at the university helps further
13 that mission of providing high quality education
14 for the undergraduates, correct?

15 MR. SALVATORE: Objection. Again,
16 beyond the scope of what he testified to. She's
17 asking the same questions of every witness, but
18 this witness hasn't testified to that. So, you
19 know, there has to be some fundamental fairness
20 here that if he is not involved in that and not
21 testifying to it, then there's no reason that he
22 should be asked that on cross-examination.

23 MS. AUERBACH: It highly relates to his
24 testimony.

25 THE HEARING OFFICER: Usually -- the

1 witnesses that we have had so far have made
2 significant reference to the CCT, and it's
3 important within the university, so I think the
4 answer to his question -- to this particular
5 question is relevant.

6 Can you ask the question again?

7 MS. AUERBACH: Can you read back the
8 question?

9 (Whereupon, the record was read
10 as requested.)

11 MR. SALVATORE: Note my continuing
12 objection.

13 THE HEARING OFFICER: Overruled. You
14 can answer, Dr. Rando.

15 BY THE WITNESS:

16 A. There is a strong positive correlation
17 between people being good teachers and their
18 students having a good learning experience. The
19 two are connected.

20 Q. The graduate fellows are paid to be
21 graduate fellows at the CCT?

22 A. They get a stipend, yes.

23 Q. And they teach in programs for graduate
24 students?

25 A. The fellows create and run workshops for

1 other graduate students, that's right.

2 Q. And so in those workshops the graduate
3 students who enroll in the workshops are being
4 trained not by faculty members but by their peer
5 graduate students, correct?

6 A. Correct.

7 Q. Most of the programs that CCT offers for
8 graduate students are also offered for post-docs,
9 correct?

10 A. They are invited to attend.

11 Q. The Summer Institute on STEM Teaching,
12 was that for faculty or was that for graduate
13 students?

14 A. That is primarily a faculty institute.
15 Occasionally, as I said before, a graduate
16 student -- it's -- occasionally a graduate student
17 will attend.

18 Q. In the Teaching at Chicago two-day
19 orientation, what is the purpose of having an
20 undergraduate panel as a component of that program?

21 A. Well, undergraduates are a big part of
22 the environment when you're teaching
23 undergraduates. So the purpose of that panel is to
24 begin to -- and sometimes if you've been working on
25 your own thesis for a couple of years and you're

1 about to start teaching, you haven't really seen an
2 undergraduate in a few years. The purpose of
3 having them there is just to fill out the
4 orientation, to let graduate students begin to hear
5 from the constituency that they're about to teach.
6 It's -- starting teaching can be scary if you've
7 never done it, even if you have started teaching.
8 And sometimes it's just orienting and calming to
9 actually see some of the undergraduates and hear
10 that, in fact, the things that help them learn are
11 the things that you're intending to do. So it's
12 just designed to help with, that first day, build
13 confidence.

14 Q. The Teaching in Chicago conference is
15 not required of graduate students?

16 MR. SALVATORE: Objection. I'm not sure
17 what the Teaching at Chicago conference is.

18 THE WITNESS: It's Teaching at Chicago.
19 Same thing. Playing with the name. Sorry.

20 BY THE WITNESS:

21 A. I don't know. Again, it's the same
22 thing. I don't know what departments do around
23 that. I don't know.

24 BY MS. AUERBACH:

25 Q. Employer Exhibit 36 the CCT page on

1 fundamentals.
 2 A. Oh, yes.
 3 Q. Does it include some programs that will
 4 be offered next year for the first time?
 5 A. Yeah. The fundamentals that we offer
 6 each year are determined by the fellows that we
 7 have, what -- how things went the year before, you
 8 know, attendance and new ideas. In fact, we are
 9 going to offer some new -- we're going to
 10 frame -- I mean, we're going to frame some of the
 11 fundamentals differently to see if we can make them
 12 relevant for more students next year. We do that
 13 every year.
 14 Q. And the program on course design and
 15 college teaching, that's not required for grad
 16 students to take that?
 17 A. Not to my knowledge. But it -- I don't
 18 know.
 19 Q. So the certificate in college teaching
 20 is not required of college students?
 21 A. The CCT isn't in the requirement
 22 business. We don't have that capacity so I don't
 23 know.
 24 Q. Do you have any knowledge as to whether
 25 any graduate students are required by their

1 MS. AUERBACH: Yes.
 2 BY MS. AUERBACH:
 3 Q. And you don't have any knowledge that
 4 any graduate students are required, by your
 5 division, the programs, or departments, to take
 6 the -- participate in the teaching consultants
 7 program; is that right?
 8 A. That's not correct.
 9 Q. Do some departments require that?
 10 A. No, no, no. To become a TC?
 11 Q. No. I'm saying do any departments
 12 require that their graduate students become
 13 teaching consultants?
 14 A. I don't know.
 15 Q. Do any departments require that their
 16 graduate students use the teaching consultants
 17 service, the program?
 18 A. I don't know.
 19 Q. And the teaching consultants are
 20 graduate students?
 21 A. Correct.
 22 Q. And they consult with other graduate
 23 students?
 24 A. Correct.
 25 Q. In that case it's graduate students

1 divisions or departments to obtain that
 2 certificate?
 3 A. I'm not sure.
 4 Q. The second language pedagogy program,
 5 that's given to graduate students and post-docs?
 6 That's in exhibit Employer Exhibit 39.
 7 A. Yes. This is a new program.
 8 Q. Has it been offered yet?
 9 A. Yeah, I think so. I think it's offered
 10 this year. It's made available to graduate
 11 students who are teaching language, teaching and
 12 studying language.
 13 Q. I mean, I'm looking at the second page
 14 and it says graduate students and post-docs. So is
 15 it also offered to post-docs?
 16 A. Post-docs can take advantage of it. We
 17 don't -- it's not a separate offering. It's not
 18 like one day for post-docs, one day for graduate
 19 students. They can participate if they choose to.
 20 Q. And you don't have any knowledge that
 21 any departments or divisions require their graduate
 22 students to participate in this program, do you?
 23 A. I don't know.
 24 MR. SALVATORE: What is "this program"?
 25 Second language pedagogy?

1 being consulted by their peers?
 2 A. By more experienced trained peers, yes.
 3 In the literature they're called near peers. FYI.
 4 Q. If graduate students who are teaching
 5 assistants do a good job as teaching assistants,
 6 that benefits the faculty members whose courses
 7 they're teaching assistants in; is that correct?
 8 MR. SALVATORE: I'm sorry. I couldn't
 9 hear that question.
 10 (Whereupon, the record was read
 11 as requested.)
 12 MR. SALVATORE: Object to the form.
 13 That's very confusing.
 14 THE HEARING OFFICER: Do you understand,
 15 Dr. Rando?
 16 BY THE WITNESS:
 17 A. Maybe rephrase the question.
 18 BY MS. AUERBACH:
 19 Q. A good quality performance by teaching
 20 assistants benefits the faculty members with whom
 21 they're working in a class?
 22 MR. SALVATORE: Objection. This is
 23 again beyond the scope of the direct material.
 24 Beyond the scope of the direct. Also, he doesn't
 25 have teaching assistants. He runs a teaching

1 center.
 2 THE HEARING OFFICER: He can testify as
 3 to his knowledge if he did offer training to
 4 individuals.
 5 As far as you know, Dr. Rando.
 6 BY THE WITNESS:
 7 A. It's so general and broad. I don't
 8 know.
 9 MS. AUERBACH: I don't have any other
 10 questions.
 11 THE HEARING OFFICER: I just have a few.
 12 BY THE HEARING OFFICER:
 13 Q. For the half-day orientation that you
 14 mentioned for teaching in the core, how often is
 15 that offered in an academic year?
 16 A. So far we've offered it once per year.
 17 Q. Is that only one session per year? Is
 18 there multiple going at the same time?
 19 A. No. Last year it was one session. But,
 20 yes, next year we're going to break it up into two
 21 sessions because it's getting so big.
 22 Q. Do you know how many attendees there
 23 were?
 24 A. About 60.
 25 Q. Of the 60 that attended, do you know

1 A. Correct.
 2 Q. Do you know approximately how many
 3 consultations the single consultant may complete in
 4 an academic quarter?
 5 A. I don't. I don't know how many they
 6 might complete. I don't. I mean -- no.
 7 Q. Do you know what the rate is for how
 8 much the teaching consultant get paid for a single
 9 consultation?
 10 A. Yes.
 11 Q. What is that?
 12 A. It's -- I don't know.
 13 THE HEARING OFFICER: I think that's all
 14 of my questions.
 15 Does the Employer Counsel have any
 16 further questions?
 17 MR. SALVATORE: No, no questions.
 18 THE HEARING OFFICER: Petitioner?
 19 MS. AUERBACH: No.
 20 THE HEARING OFFICER: Dr. Rando, you are
 21 excused.
 22 THE WITNESS: Thank you.
 23 MR. SALVATORE: Thank you, Bill.
 24 THE HEARING OFFICER: With that it is
 25 5:04 at the moment. If there's no objection, we'll

1 approximately how many were graduate students?
 2 A. I don't.
 3 Q. For the Teaching at Chicago two-day you
 4 had mentioned, who conducts this orientation?
 5 A. You mean who runs it?
 6 Q. Yes.
 7 A. We do. The CCT.
 8 Q. So it would be the staff of the CCT?
 9 A. Correct. The staff run it.
 10 Q. So you had mentioned that the course
 11 design training offered by the CCT has been offered
 12 four times. Over what time period is that?
 13 A. Two years. Twice a year for two years.
 14 Q. You had talked about how the CCT offers
 15 one-on-one consultation; is that accurate?
 16 A. We do.
 17 Q. Are these consultations conducted by the
 18 teaching consultants?
 19 A. They are pretty much everyone involved
 20 in the CCT. At some point there's a one-on-one
 21 consultation. The teaching consultants, that's
 22 their primary role. But I -- so, yeah.
 23 Q. Correct me if I'm wrong, but I believe
 24 you said that the teaching consultants are paid per
 25 consultation?

1 adjourn for the day and resume tomorrow morning at
 2 9:00 a.m. all right?
 3 Off the record.
 4 (Thereupon, at 5:04 p.m., the
 5 hearing was continued, to
 6 resume at 9:00 a.m., Wednesday,
 7 May 24, 2017.)
 8
 9
 10
 11
 12
 13
 14
 15
 16
 17
 18
 19
 20
 21
 22
 23
 24
 25

CERTIFICATION

This is to certify that the attached proceedings before the National Labor Relations Board (NLRB), Region 13, in the matter of The University of Chicago and Graduate Students United, Case No. 13-RC-198325, at Chicago, Illinois, on May 23, 2017, was held according to the record, and that this is the original, complete, and true and accurate transcript that has been compared to the recording, at the hearing, that the exhibits are complete and no exhibits received in evidence or in the rejected exhibit files are missing.

YVETTE BIJARRO-RODRIGUEZ, CSR
LICENSE No. 084-003734

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

A				
abilities 649:22	802:15 805:9	addresses 703:5	668:24 673:2	allows 628:16,20
ability 646:6	accurately 602:5	adequate 641:3	674:8 675:22	635:10 669:21,24
657:15 750:17	602:24	711:10	680:16 682:7,14	709:11,22
able 605:14 612:17	achieve 690:16	adequately 704:3	advisors 621:17	alter 649:7
622:23 631:11	772:12,13	706:24	advisory 596:22	alternative 607:15
641:5,8 644:5	achieved 694:1	adjourn 804:1	630:19 662:19,23	607:19
652:20 655:19,24	acquire 626:13	administered	affairs 592:9,11,16	AMERICA 588:1
667:3 672:20	acquisition 730:7	597:18	593:24 595:15	AMERICAN
678:16 739:1	acronym 747:8	administration	660:14 680:19,25	589:16
773:18	active 595:1 604:16	595:16 722:5,11	691:1 729:23	amount 619:18
absolutely 629:24	610:3,7,16 735:13	723:15	affect 632:25	691:9 695:19
645:16 646:12	actively 597:13	administrative	683:24	723:11,16 724:3,8
648:10 653:5	605:2	597:23 630:18	affiliate 605:25	724:11,13 725:1
667:19,20 729:7	activities 635:12	administrator	afternoon 744:23	725:21 726:2,5,7
abstract 648:3	652:13 690:17	723:23 724:2	age 621:15	726:18,20,20
716:12	730:5 772:7,8	725:22 727:23,25	agencies 653:19	727:4,6,11,12,14
abstracts 647:24	activity 604:1	admission 636:4	725:25 729:15	727:22 738:18
academia 643:17	605:5,6 649:25	637:14 659:3	agency 646:22	amounts 725:10
649:15	actual 726:21	660:11,17 661:8	654:3,5 726:15,15	analogies 616:20
academic 594:7,18	727:13 736:5	684:1 688:18	728:2,4	704:7
597:4 602:20	add 752:19,24	689:5 717:7	agents 676:25	and/or 608:22
643:8 645:16	added 759:21	718:23 720:17	ago 613:19 649:18	angles 617:14
649:13 651:9	764:9	admissions 594:5,5	684:17 721:24	animal 676:19
666:4 679:3,24	addition 594:11,17	670:10 689:15	730:2 745:3 748:5	737:9,25 738:2
680:12 681:3	596:19 604:13	690:5	752:1 764:10	animals 671:13
684:25 731:13,16	626:7 627:8	admit 600:4 618:23	agree 705:23	672:12 676:1,16
734:7 740:12	636:14 637:9	642:8	agreed 712:13	676:17,21 737:8
741:2 751:21	641:23 647:9,11	admitted 633:14	788:10	737:19 743:12,13
755:23 782:17,24	649:25 662:5	638:2 667:14	ahead 603:19 731:2	announced 697:13
783:1 801:15	675:2 676:11	advance 746:20	791:6	annoying 624:24
803:4	702:3 721:4 722:1	747:5 770:2	aid 726:24,25	annual 731:25
accept 660:16	731:5 746:7	advanced 693:20	aim 647:4 750:10	756:19 757:14
662:10 666:20	768:21 791:23	747:16 754:18	aims 647:1	788:22
accepted 666:21	additional 597:16	768:7,10,19 779:9	alignment 772:4	annually 674:15
688:19	606:23 622:22	779:14	ALLAN 589:6	724:12
access 738:22	627:25 629:1,14	advances 747:13	allotted 723:11	answer 610:13,19
739:1 747:18	632:2 662:1 667:6	787:24	allow 611:18	612:15,23 613:5
752:10	674:11 678:8	advantage 619:6	617:17 659:13	614:11 618:9,11
account 675:9	686:22 687:12,19	643:14 769:19	667:5 682:21	618:20,22 619:1
accurate 602:16	688:6 695:14,16	798:16	707:18 739:4	646:17 689:6,8,21
633:14 714:23	700:19 716:25	advice 621:20	746:16 747:22	690:11 703:5
715:1 728:19	720:1,2 730:12	666:14 674:17	750:24	705:9,9,12,16,21
734:9,11 749:18	735:21	advising 643:15	allowed 605:18	706:3 709:13
756:24 765:8	additionally 674:16	advisor 628:14	648:1 697:23	710:2 713:8 716:3
767:17 771:3	703:18	638:20 639:18,20	705:9,16	716:4 725:16
774:9 778:8 782:4	address 647:7	639:24 641:7	allowing 629:1	727:15 734:13
	addressed 644:8	657:21 668:13,20	642:7	746:17 782:22

787:5 791:7 794:4 794:14	615:6 656:19 677:7 751:22	arrive 661:6	associate 592:21	704:16,19 705:3
answered 620:4	approaches 604:17	arrived 658:14	595:3 745:8,9	705:17 707:2,9,21
709:24 710:1	610:3 611:6,14	693:19 748:5	762:7,10,12	708:11,24 709:6
725:12 751:24	614:14 621:2	arrogant 636:19	associated 670:10	710:5 712:21
763:23 790:21	655:12 657:8	articles 645:12	697:13 724:4	713:8,9 714:6
answering 613:3	751:23	715:25 742:8	725:1 726:18	715:13 716:3,8
705:4	appropriate 605:11	arts 626:17 746:5	727:19 747:8	717:7,13 718:23
answers 621:4,6	605:19 610:12	aside 738:18	assume 753:19	719:4 720:17,22
705:19 790:5,6	612:10,14 622:16	asked 621:1 646:1	755:16	721:17 722:2
anthropology	633:18 637:7	659:7 670:4	assumed 732:1	725:13,20 726:23
769:3	642:1,6 644:6	686:12 695:6	assuming 746:13	727:5,10,21
anticipate 754:15	661:15 662:24	706:4 709:24	assure 639:25	732:18,24 733:4
anybody 656:22	663:19 665:9	713:16 725:12	Atrium 589:5	733:12 743:2,6,19
678:1	667:4,7 681:1	727:7,10 741:23	attached 805:2	746:12 750:3
anymore 741:15	689:12 701:24	783:7,17,19	attempt 611:10	757:9 765:17
746:10 776:9	702:19 723:25	790:20 793:22	684:10	767:25 771:11
779:12	728:1 729:24	asking 610:9 624:6	attempting 612:4	774:17 778:17
AP 693:18 694:1	730:9 731:11	630:14 693:2	655:13 680:6	780:7 782:12
695:6	790:22	704:9 705:1,4,5	attend 608:2	785:7,18 786:22
apart 674:4	appropriately	705:20 725:14	642:18 698:24	787:8,21 788:7,16
apologize 649:16	595:12 637:8	727:13 790:23	793:9 795:10,17	790:1,10,23 791:2
741:8	676:18 701:21,23	793:17	attendance 797:8	793:23 794:7
apparent 785:1	702:5	asks 705:8	attended 750:16	796:24 799:1,2
appealing 662:6	approval 604:3	aspect 612:6	801:25	800:18 801:9
appear 627:16	606:4	assessment 772:4	attendees 801:22	803:19
719:23,25 720:3	approximately	assigned 609:23	attending 699:24	augmented 730:6
749:18	597:22 600:10,14	610:22 631:13	711:15	authentication
appears 788:22	600:18,20 688:11	660:13 667:8	attends 791:13	733:1
applicants 659:16	690:19 694:5,7	assignment 621:5	attention 601:25	author 718:15,16
application 659:8	696:10 697:8	assist 612:10	616:17 634:14	718:18,19,22
659:22 660:20,25	730:2 780:1 802:1	assistant 592:20	635:7 703:22	720:14 736:22
712:4 723:4,6,7	803:2	601:15,19 606:25	742:7	authoring 719:16
727:12	Aprison 605:15	626:25 630:8	attract 654:17	authority 611:21
applications	area 655:8 730:4,8	634:18 700:4	audience 641:2	authors 715:24
659:15 722:21	731:16 768:12	710:7,16,16	652:14 704:8	718:9,11,22
applied 612:24	areas 616:4,11,17	722:22 723:4	769:9	719:14,25
661:5 721:9 740:6	616:24 703:8,11	762:14	AUERBACH	authorship 675:24
applies 659:2	703:13,23 704:11	assistants 609:5	589:11,13 600:6	677:4,9
apply 654:11 659:6	704:21	684:13 723:12	603:14,18 607:3	autumn 635:8
721:13,18 722:3	argument 644:8	724:4 726:25	636:6 637:16	670:11
729:21 787:23	788:4,4	800:5,5,7,20,25	685:6 686:1,11	available 620:20
applying 661:21	arisen 655:22	assistantship	688:17,24 689:2	630:20,24 641:4
782:24	656:16	687:19	689:14,18 690:4	644:20 669:17
appointed 599:21	arrange 654:19	assistantships	690:14 691:13	738:11 739:4,10
599:24	arranged 680:24	601:14 695:14	692:6,7,22 694:15	739:11,15 798:10
approach 610:8,14	array 617:17 658:6	assistant's 710:7	694:17 698:20	Avenue 589:12,17
		assisting 753:23	700:24 702:16	avenues 651:11

663:5 average 600:24 779:20 avoid 611:11 614:7 616:23 618:21 675:5 awarded 730:2 aware 740:5 awetzman@pro... 589:8 awkward 624:23 a.m 588:13 804:2,6	began 592:19,20 beginning 616:6 657:23 734:3 755:20 begins 612:9 637:4 begun 670:2 behalf 589:3,10 610:19 behavior 611:7 belief 652:23 749:19 756:25 765:9 767:18 771:4 774:10 782:5 believe 677:2 693:23 719:10 780:5 802:23 belittles 636:20 belongs 599:25 bench 639:9 beneficial 706:17 benefit 607:13,17 607:19,22 611:25 612:3 615:13,16 620:8,11 621:24 622:1 625:12,16 649:10,12,19 651:3 653:2,4 654:7 655:1,4 657:11 664:10,16 678:12 699:11,17 700:1,3,7 702:17 704:12 706:9,19 706:20,23 707:5 707:23 711:16 730:21 760:4 786:24 788:11 benefits 660:5 699:6,21 700:12 709:9,20 710:9,11 710:20 711:13 721:5 730:23 731:2 742:20 800:6,20 benefitted 650:1 benefitting 649:25 721:4	BENNETT 589:11 best 649:21 659:10 664:18 665:21 677:6 688:21 689:1 747:25 749:19 751:2 752:14 756:24 757:1 765:8 767:7 767:17 771:3 774:9 782:4 better 597:9 616:9 616:22 626:9 636:12 641:11 645:20 660:23 678:16 682:20 704:8 738:9 741:5 769:10 772:11,11 beyond 621:19 629:7 638:23 644:14 649:15 690:2 695:17 696:12 737:12 787:13 793:16 800:23,24 big 751:13 755:10 760:4 779:7 783:24 792:9,10 792:11 795:21 801:21 bigger 775:22 BIJARRO-ROD... 588:24 805:15 Bill 803:23 Biochemistry 593:15 599:2 biological 594:3 602:3,6,12 603:13 603:22 605:25 625:24 626:3 643:7 659:6 665:14 686:19 696:7,8,11,17 biology 592:23,25 593:3,18,21 599:4 599:5,5,7,8,9,23 599:25 600:2,2 605:17 616:22	617:6 650:9 669:2 669:3,4 670:15 671:12 687:3,4 688:1 693:21 716:14 736:21 Biomedical 721:23 biomedically-rel... 654:3 biophysical 597:17 599:3 biophysics 599:2 biosciences 598:24 606:24 bit 603:3 654:24 706:4 758:14 759:5 773:1 783:12 bite-size 644:7 biweekly 696:2,4 BLOCH 589:11 blow 686:18 blown 681:9 board 588:1 602:1 686:4 805:4 Boca 589:5 bold 752:18 book 645:13 books 793:4 boot 605:23 606:10 606:12 607:20 665:12 691:3,3,6 Boston 745:18 bottom 607:11 628:7 Brain 721:25 break 623:6 624:5 629:23 630:1 638:16 671:2,5 685:5,6,8 702:15 733:8 785:11 801:20 breakdown 683:4 breakout 764:1 breaks 610:15 614:23,25 615:1 bridge 684:8 briefs 685:17 686:3	686:5 brilliant 669:16 bring 619:1,4 653:18 654:21 707:10 750:23 781:1 brings 715:10 broad 623:15 641:2 668:25 670:23 715:18 740:20 801:7 broader 642:24 643:16 649:3,24 659:24 broken 647:5 BSc 593:9 BSD 594:10,25 595:5 597:3,4,10 599:1 600:22 601:1,14,18 602:3 604:21 605:7 606:4 607:9 609:5 625:19 626:8,19 626:23 627:15,19 629:6 630:7 631:7 637:24 638:12,14 638:17 661:21 667:13 684:12,15 688:19 691:5 694:14 729:22 730:15 734:8,10 734:10 739:8,18 740:1 BSD's 600:11 609:9 budget 722:18 723:25 725:10 728:14 build 644:8 648:13 657:17 796:12 built 595:10 642:14 730:6 bullet 636:15 bunch 775:23 business 749:22 757:4 765:12 767:21 771:7
--	---	---	--	--

774:13 778:12
782:7 797:22
bypass 698:10
byproduct 700:18

C

C 589:1 614:17,18
call 610:13 639:3
643:11 646:8
647:1 674:25
676:11 680:2
744:6 752:7
754:17 779:4
780:3 781:5
called 591:15 601:3
631:17 638:12
674:23 687:2
693:23,23 737:25
739:12 744:15
746:4,10 748:6
763:5 766:3 792:2
800:3
calls 591:8 744:8
calming 796:8
camp 605:23
606:11,12 607:20
665:12 691:3,3,6
campus 604:2
606:2 638:23,23
652:2,3 653:15
659:17 661:6,15
662:14 693:15,19
729:13 730:15
748:22 749:1
752:20,21 781:15
cancels 692:1
cancer 599:4
candidacy 642:8
670:10
capable 622:2
capacity 596:24
797:22
capstone 781:19
caption 695:11
care 676:19 737:9
737:25 775:15
career 612:5

628:23 642:24
643:3,4,8,10,12
643:15 649:13
656:3 674:19
678:18 700:6
702:3 735:1
760:12
careers 604:18
626:16 643:8
653:8
careful 701:20
CAs 763:16
case 608:25 658:10
675:16 680:7,7
683:7 685:17
686:3 696:15
698:11 718:13,22
755:8 757:20
769:4 789:19
790:14 799:25
805:6
cases 636:22
656:12 658:8
662:22 669:10
681:24 682:8
728:2 747:15
783:6
category 688:12,15
caution 619:14
ccoop@gmail....
589:19
CCT 746:14 747:10
747:11,12 748:3,4
748:11,15 749:11
749:13 751:9
752:2 756:4
757:15 759:4
760:25 762:3
763:5 765:3,22
766:12 767:13
768:5,11 770:19
770:22 771:16
773:21 774:5,21
779:2 780:12,20
780:20,22 781:5,7
781:17 782:17,19
784:11 785:20

786:6,11,17 787:9
787:19 788:5,17
789:1 790:1,17
791:3,25 794:2,21
795:7 796:25
797:21 802:7,8,11
802:14,20
CCT's 763:2
cell 599:4,7,23
670:15 736:21
cells 650:18,19
675:24
center 588:11
608:3,12 626:20
745:9 746:4,6,10
746:11,19,22,25
747:2,3,4,9 748:6
748:6 756:18
757:15 776:20
777:19 779:8
787:25 801:1
centers 752:8
central 638:5 759:3
centralized 595:22
certain 610:2
612:23 615:10
616:14 624:24
625:3 650:20
669:5,21 686:21
692:12 693:6
697:16 728:23
737:6 738:18
775:4 791:24
certainly 618:17
623:21 657:5
715:10 740:24
746:15 755:8
certificate 773:21
774:6,22,23 775:4
775:7,12,14,20
776:4,10,19,25
777:9,18,23 778:6
797:19 798:2
certification
737:21,24 805:1
certify 805:2
CERVONE 589:11

chair 592:22,24
593:4 596:21
674:9 679:4
680:15 727:25
chalk 697:12
challenges 791:17
challenging 641:10
648:8 655:11
chance 664:25
710:17 764:7
change 644:21
652:9 681:8,11
changed 662:7
changes 644:17
646:1 656:18
658:21 692:1,15
757:21
changing 657:9
692:16
CHANNING
589:18
chapter 648:20
649:1
chapters 645:13
648:16,19 649:9
characterize 708:8
charge 762:11
chart 614:22
charts 686:18
check 613:9 618:25
701:12,13
chemicals 738:8
Chicago 588:3
589:13 591:7
592:3,5,13,19
593:12 598:24
606:1 608:3,12
626:20 627:6
637:25 643:12
659:2 667:12
668:17 682:3,5,9
721:23 736:11
744:8,25 745:2,7
745:9,13,24 746:1
747:2,3,7,9
748:11 749:24
752:1 753:22

756:18 757:5,14
759:21 760:1,2
761:11 763:6
765:2,13 767:21
771:7 774:13
776:20 777:19
778:12 781:20
782:8 784:16
795:18 796:14,17
796:18 802:3
805:5,6
choice 631:12
678:21
choices 752:18
choose 607:10
631:14 731:6
798:19
chooses 631:7
choosing 793:5
chose 660:20
752:22
chosen 667:17
670:5,6 738:25
CHRISTINA
588:10
circumstances
681:18
citation 646:3
clarify 618:14
699:22
clarifying 713:21
734:12
clarity 613:21
619:22 622:18
646:10 649:6
class 603:5 604:9
604:15,19,22
605:3 608:22,25
610:9,15,22,23
611:5,8,12 614:15
615:8,10,12 617:1
618:6,22,24 619:1
619:23 620:13,21
623:6 624:6,8,8
624:10,16,22
625:9,17 631:11
633:6 634:23

635:1,22 675:11 675:22 676:6,6 691:4,6 695:20,22 697:13,14 698:21 698:22 700:18 710:18,22 712:3 712:11,13 735:19 742:5 753:9 755:9 755:11 758:22 763:18 766:13,15 770:24,25 773:15 800:21 classes 608:25 609:11,23 617:6 622:6,9 623:25 625:15 626:15 627:5 630:20 663:22 668:3,6 697:19 699:11 700:20 701:5,7 703:12,14 730:5 792:22 classroom 603:23 609:6 611:23 612:2 618:16 621:16 624:13 637:21 747:21 754:11,12,12 761:13,14 764:2 769:10 clear 606:4 612:15 612:21 613:13 646:18 706:11 clearly 624:18 646:13,14 clock 672:3,5 close 731:19 closed 679:24 750:23 closely 718:3 753:4 769:5 closer 621:14 Cluster 687:1 clusters 675:12 coauthored 716:14 719:12 742:9 collaboration	626:19 638:24 677:7 749:16 collaborative 755:1 colleague 720:13 colleagues 638:23 752:12 791:25 collect 635:2 collection 762:24 793:4 college 593:9,13 621:17 745:8,18 748:20 758:11,12 770:12,21 771:16 772:1 773:21,22 774:7,21 776:18 777:8,23 797:15 797:19,20 colleges 626:18 collegiate 625:24 696:7 column 602:22 combinations 675:12 combine 777:20 combined 682:10 come 594:6 604:14 611:4 613:15 614:25 619:20 620:21 621:6,9 623:4 640:5 658:1 658:8 659:17 662:13 663:12 665:15 668:21 669:3,21 676:15 676:22 677:11 679:20 682:19 723:19 725:7 760:20 761:15,19 761:24 764:6 768:14 770:2 783:11,19 784:1 789:13 comes 611:2 669:15 687:14,15 782:2 comfortable 610:18 613:6	617:10 624:11 661:2 coming 593:12 658:21 662:2 745:23,25 766:9 780:24 781:6 comment 636:14 comments 636:17 636:18 Commercially 738:11 committee 592:22 592:25 593:3 594:10 595:6 596:22 599:5 600:1 628:14 630:19 642:7 662:23 674:2,3,7 674:10,11,16 679:1,4,7,13,20 680:15,24 682:2 687:2 736:20 737:10 738:1 committees 662:19 common 650:10 675:14 communicate 704:3 766:18 communication 595:25 640:24 645:11 652:25 675:25 683:4,15 704:4 communicator 625:18 community 595:10 643:17 747:20 761:24 773:17 companies 738:10 compare 711:4,6 757:19 compared 727:8 805:9 compares 726:7 compensated 627:15 compensation	698:17 complaining 636:19 complete 601:19 605:10 613:8 628:21 658:19 670:9 682:8,14 683:10 705:9 712:7 728:20 737:8 756:23 775:4 803:3,6 805:8,11 completed 629:18 633:22 635:1 637:3 657:19 672:24 691:16 702:22 713:2 716:24 731:20 736:4 776:17 completely 625:5 656:24 719:10 completes 666:3 completing 627:16 completion 638:4 complex 617:5,12 617:16 652:12 673:20 700:5 706:6,10,14 complexities 617:4 compliant 676:18 complicated 650:15 777:16 comply 680:20 742:12 component 628:24 644:2,13 657:14 704:4 718:12 764:14 772:5 795:20 components 640:3 640:5,16 687:7 compound 702:10 702:13 714:16 721:10 comprehensive 719:11 comprises 674:7	computational 599:6 computationally... 639:3 concept 618:19 concepts 700:5 conceptual 764:15 concern 621:18 concerns 758:8 concluded 648:25 conclusion 656:22 condescending 636:19 condition 684:23 730:12 conduct 594:14 612:1 615:22 638:3,11 649:19 696:23 708:17 714:24 729:6 conducted 677:24 714:11 730:17 733:23 735:8 802:17 conducting 638:4 638:25 714:8,20 715:5 conducts 802:4 conference 652:4 796:14,17 conferences 642:18 642:20 647:22 confidence 754:22 764:16 796:13 confident 624:21 701:16,20 702:4 confirm 633:13 661:2 664:2 702:6 confirming 635:12 confronted 619:3 confused 620:3 confusing 616:12 616:16 703:9,23 704:21 800:13 confusion 616:13 616:23 conjunction 595:24
--	--	---	--	--

679:12 680:14 752:14 connected 760:1 794:19 consider 610:4 618:10 628:11 655:20 685:19 considering 641:25 657:25 consistent 636:13 701:24 703:1 714:25 724:23 729:3 consists 691:6 763:24 Consortium 721:23 constantly 625:4 644:24 constituency 796:5 consult 628:13 799:22 consultant 803:3,8 consultants 779:3 779:25 799:6,13 799:16,19 802:18 802:21,24 consultation 779:15 780:4 789:7 802:15,21 802:25 803:9 consultations 769:16,17,21 779:20 783:22 802:17 803:3 consulted 800:1 contact 606:6,14 611:11 661:1 contacted 789:1 contacts 789:5 contain 689:10 contains 628:3 689:9 content 609:18 622:14,15,15 626:1 649:7 762:16 771:17,18 771:24 773:16	context 649:2 681:9 710:1 737:13 749:1 continual 698:4 continue 632:4 642:9 653:22 654:18 656:3 657:18 682:1 684:3 697:24 698:3,19 731:23 732:1 740:12 continued 758:8 804:5 continues 644:14 687:11 760:5 continuing 679:3 760:3 763:11 794:11 contribute 718:12 conversation 658:11 666:6 739:5 750:21 777:3,5 791:15 conversations 619:9 624:24 666:13 792:13 convey 616:22 652:20 COOPER 589:18 coordinates 762:23 coordinator 762:23 coordinators 684:15 copies 720:8 copy 713:13 core 619:7,10 626:1 653:15 708:4 734:15 760:8,13 760:16,17,19,21 789:17,21 790:2,8 790:12,15,18 791:4,12,15,16,18 791:24 792:2,3,14 792:15,20,22,24 793:3 801:14 cores 792:18 correct 603:1	604:24,25 637:25 638:1 657:1 667:10,18 688:3 691:8 699:7 702:9 702:19 703:4,9 707:7,25 709:12 710:4,10,19,22 711:19,20,25 712:1 714:11,12 714:15 715:20 717:6 720:25 721:1,6,7 723:13 726:4 729:9 732:24 735:4 749:14 751:9,10 753:21 764:19 772:17 776:18,22 786:4,13,16 793:9 793:10,14 795:5,6 795:9 799:8,21,24 800:7 802:9,23 803:1 correlation 794:16 cost 653:15 684:9 726:17 728:18,21 costs 723:8 724:3 725:1,2,4,8,19,22 726:2,6 728:20 council 594:21,23 counsel 591:5 594:10 685:16 689:19 705:8,10 705:11 707:20 732:20 803:15 counseling 632:3 counselling 632:4 counted 641:12 735:25 couple 733:5 741:18 743:2 750:14 763:24 769:1,3 779:24 781:9 795:25 course 594:15,16 596:16 601:21 602:18 603:23 604:5,7,18 607:14	607:15,18,25 609:6,16,18 610:1 616:2,6 619:7,11 621:12 624:1 625:20 629:8,9 630:14,16 631:14 631:14 632:5,7 633:12,17,23 635:21 636:21 637:6,10 648:24 659:9 663:20 664:20 674:23,25 675:1,7,8,18 692:1,3,4,9,11,17 692:19 693:1,4,17 693:22 694:2,6,8 695:6 709:21 710:8 713:23,24 735:24 736:5 741:24,25 742:2 749:22 755:6 757:4 758:12,12 758:13,17 763:3 765:12 767:20 770:11,20,21,22 771:6,15,16,19,20 771:24,25 772:2,3 772:15,18,21 773:6,10,19 774:12 775:11 778:12 782:7 783:11,11 792:10 792:14 793:6 797:14 802:10 courses 596:13 603:6 604:22 605:7,7 607:21 622:5 625:21,22 626:1,10,12,18 662:20,24 693:6,9 693:10,12,13,14 693:16 694:11,18 694:21,22 695:1 695:15 697:2,5 711:22,22 712:17 713:3,17 732:3,9 732:12 734:15	735:6,8 742:4 748:1 770:12 787:19 790:9 791:25 800:6 cover 596:10 617:6 617:7 623:25 653:15 659:12 684:9 703:11,13 704:11,20 727:19 coverage 687:12 690:1 706:10 covered 643:23,24 647:15 669:15 677:11 684:8 699:25 706:15,15 707:13 725:18 790:21 covering 627:19 co-author 720:25 742:12,14 co-authored 717:19 co-direct 742:2 co-director 643:10 674:25 craft 642:12,21 crafting 673:22 create 753:13 777:23 794:25 creative 649:5 creatively 669:11 creativity 647:10 credentialing 775:10 credit 606:25 criteria 665:6 critique 652:8 critiqued 604:10 cross 590:2 685:5 685:14 686:9 698:6 787:22 cross-examination 686:10 741:23 785:17 793:22 Crystal 716:15,16 716:18,22 717:19 717:20 718:2
---	---	---	--	--

720:6,11 CSR 588:24 805:15 culminating 640:16 cultural 595:2 culture 661:18 664:23 752:14 764:8 curious 611:9 current 592:7 659:25 660:1 730:14 748:4 757:19 currently 597:12 626:18 670:16 671:17,21 684:21 728:5 731:25 732:9 739:21,23 753:11 curriculum 662:22 776:5 curve 614:11,12 curves 615:6 CV 648:13 777:1 783:5,5,6 cycle 784:12	642:5 656:6 dealing 602:3,11 707:17 769:5 deals 602:22 756:1 dean 592:8,10,16 593:23 595:14 660:13 690:25 729:22 745:8 748:20 deans 594:9,19 dean's 594:21,23 Dearborn 588:12 debate 750:21 Debbie 748:19 decide 664:4 681:25 685:25 731:7 776:9 decided 598:6 633:16 681:23 760:7,20 decides 666:17,19 deciding 628:14 decision 664:6 665:21 666:12,12 681:3 705:14 decisional 628:23 decisions 665:11,18 decrease 692:25 deep 648:22 deepen 750:17 deeper 749:2 deeply 618:10 defend 670:17 defense 670:7 define 668:25 defined 658:2,9 662:22 670:19 728:2,3 definitely 767:12 degree 593:13,20 600:22,24 601:2,5 605:13 623:23 657:4,5 682:3 683:13 736:11 745:20,21 degrees 601:1 deliberately 611:11	deliver 622:19 625:25 734:25 delivering 616:8 624:22 626:2 685:15 demeanor 624:13 demonstrative 602:1,3,24 603:6 603:8 626:21 627:17 denied 740:7 department 598:11 600:1 723:18,21 723:22 725:23 727:23,25 736:19 764:5,7 769:1 781:16 786:1 departments 597:4 684:8 739:9,10 766:25 769:25 783:19 786:2,3,5 786:8 796:22 798:1,21 799:5,9 799:11,15 dependent 615:1,2 624:7 678:4 718:17 749:1 depending 646:21 662:21 666:9 695:22 depicted 617:14 deputy 748:19 describe 594:23 604:5 615:21 659:1 706:24 779:1 782:20 described 601:23 606:6,11 607:12 612:7 624:9 641:18 645:2,8 649:18 651:13 655:2 659:21 737:16,22 770:11 describes 606:24 describing 704:6 description 607:8 design 612:16	758:12 770:20 771:15 772:4,4 773:19 781:14 783:11 784:18 791:20 797:14 802:11 designated 707:4 707:22 709:9,19 709:21 723:22 728:8 designed 649:20 658:18 761:12 772:9 784:18 789:12 792:23 796:12 designing 748:1 772:1 desire 628:22 682:5 detail 603:4 623:16 623:20,23 640:6 641:15 651:16 676:10 690:3 detailed 613:25 623:13 details 614:1 623:17 657:20 658:13 660:6 708:2 713:14,15 determine 623:9 656:15 658:12 660:10 665:7 666:20 681:1 731:10 determined 598:5 605:22 627:12 664:21 692:9 718:14 797:6 detract 628:12 develop 604:12,18 633:17 641:8 643:16 644:5,11 644:11 645:20 649:22 650:12 748:15 755:13 765:23 developed 612:22 706:24 769:22,22	775:6,7 developing 640:9 643:25 651:6 657:14 677:21 704:4 715:8 751:17 754:6 755:24 768:6 development 599:6 599:23 612:10 627:10 642:25 643:2,10,11 647:23 658:24 670:15 674:19 693:24 700:7 711:3 736:20 753:9 755:4 764:14 781:21 developmental 592:23,25 593:3 593:21 616:22 617:6 650:8 671:12 716:13 717:18 develops 721:1 device 624:9 devices 616:20 devote 697:16 devoted 762:19 dexterity 650:21 Diabetes 721:22 differ 673:11,17 713:12 difference 629:11 675:6 788:13 differences 629:17 different 594:25 607:12 614:13,14 615:24 616:18,19 616:20 617:14,14 617:17,19 631:12 641:12,21,21 646:2 647:17,18 648:9 656:13 660:23 661:1 663:7,18,25 664:11 669:8,22 674:9 675:13
D				
D 590:1 Darwinian 687:1 data 624:18 625:7 642:15,19 647:22 648:4 652:15 656:11 680:6 762:24 779:23 date 690:21 717:1 dates 718:4 David 719:24 day 685:25 705:18 759:18 763:15,17 783:15 796:12 798:18,18 804:1 days 707:17 763:15 764:18 day-to-day 641:6 677:9 deal 610:23 621:8 622:3,17 628:25				

676:7,8 682:6 687:5 692:24 693:9 703:3 704:6 704:7 712:22 721:21 734:23 739:2 747:17 754:2,3 763:11 768:14 775:19,19 775:23,24,25 differently 797:11 differs 664:12 difficult 612:16 623:2 677:5 682:12 703:17 704:3,11 708:1 difficulties 610:22 610:24 Dimes 721:22 DIRE 590:2 direct 590:2 591:17 601:25 634:13 635:7 707:13 728:18,20 742:7 744:17 787:13,13 787:22 790:22 800:23,24 direction 644:25 658:12 673:23 674:13 directions 649:4 669:12 directly 594:6 624:18 636:22 640:19 652:15 732:12 739:15 director 592:8,11 592:16 593:23 595:15 605:16 635:22 685:18 713:24,24 745:9 762:6,14 777:18 directors 596:15,17 596:18 752:8 762:7,10 Dirksen 588:11 disciplinary 771:23 discipline 769:6	disciplines 754:3 discourage 611:7 discuss 591:4 597:1 604:15 610:9 611:6 612:12 616:3 621:11,11 630:17 646:10,19 662:19 664:2 676:3,20 677:6 703:16 729:23 discussed 604:19 663:1 699:3,15 706:7 719:14 discussing 642:17 642:21 676:8 discussion 605:1 608:21 609:19 610:5 611:4,17 615:20,23,24,25 616:5,7,8 617:8 617:23,25 618:6 619:5,15,19 620:5 620:12 621:3 624:4,14 628:4 641:18 647:15 649:1 662:25 675:16,17 679:14 696:22,23 697:3 699:4,5,6,8,13,14 699:24,25 700:11 700:21 703:7,16 703:24 704:11,22 706:16 707:3,5,11 707:23 708:18,25 709:2,8,8,11,15 709:18,19,22 727:24 733:18,20 734:4 744:3 781:12 787:18 discussions 618:3 620:10 645:7 677:12 708:19 709:1 dismissal 680:23 740:22 dismissed 680:22 681:2 740:13	741:9 dissatisfied 683:6 dissection 650:14 dissections 650:17 disseminate 652:24 dissertation 639:22 640:15,16 642:6 642:22 644:13 645:22 646:24 647:11 657:22 658:5,14,16,18,24 668:22 670:5,7,9 670:24 673:8 680:1,10 682:15 683:10 738:25 742:18 distance 682:2,10 dive 648:22 diverse 770:5 diversity 594:10 595:5 754:24 761:20 762:17 768:18 772:5 division 594:3 595:12 602:4,7,12 603:22 604:21 605:13 625:24 628:5 632:1 653:20 659:7 667:13 670:8 683:20 684:7 686:20 688:2 694:16 696:5,7,9 696:12,17 711:21 712:17 713:3 734:25 736:17 764:3 766:21 781:15 788:21 799:5 divisional 594:11 601:24 602:5 604:3 606:25 627:24 629:2,18 629:21 682:23 687:18,22,25 688:4,7 771:23 divisions 696:16	754:3 798:1,21 Doctor 599:15 document 603:14 634:15 642:22 646:20 679:16,17 680:13,18,21 685:21 686:17 692:21,23 716:9 717:14 719:5 722:8,14 724:17 728:10 749:8,21 756:15,21 757:3 764:23 765:8,11 767:11 770:16 778:11 documentation 783:2 documents 647:12 647:17,20 689:3 783:2 doing 607:23 613:4 624:4 639:9 644:16 652:24 657:3 658:11 683:19 691:17 715:15,17 723:1 753:1,11,12,13 756:7,9,10,10 757:23,24 766:17 777:20 781:9 792:17 dollar 723:11,16 725:1 726:5,7,18 727:6,22 domain 605:12 616:4 669:4 730:8 domains 619:13 dominate 611:5 doors 750:24 double 706:5 DOWD 589:11 download 617:12 Dr 590:3,5 591:8 591:25 598:19 602:9 603:8,20 605:15 606:3 622:4 630:6	634:13 637:20 658:23 671:10 686:12 689:22 694:14 710:2 711:4 727:2,16 743:24 744:9,23 745:16 749:5 750:8 757:13 763:1 765:21 774:22 778:23 780:11 782:16 784:11 785:4,19 787:5 789:25 791:7 794:14 800:15 801:5 803:20 draft 749:15 784:9 drafts 645:22 784:10 drink 625:4 drive 669:11 duly 591:15 744:15 duration 632:5 duties 627:25 637:9 Dynamics 717:18 D.C 589:17 <hr/> E <hr/> E 589:1,1 590:1,7 Eames 720:12 earlier 615:18 624:10 625:19 652:14 682:11 683:14 699:19 752:13 759:1 768:21 782:24 early 608:5,14 627:11 637:4 640:13 642:4 643:19 669:19 675:5 677:23 697:14 earn 628:5 easier 704:23 easy 792:24 ecology 599:7 687:3
--	--	--	---	---

edit 645:24	employees 626:5 734:24	683:8,17 703:19	705:21 742:13	631:24 633:5
education 596:22 605:16 653:23 660:5,5 745:22 760:3 762:13 776:1 793:8,13	Employer 588:4 589:3 591:5 598:16,18,20 600:4,7 602:10 606:16,18,19 607:1,4 634:11,14 635:20 636:5,7 637:15,17 686:13 691:20 695:10 698:12 712:23 713:5,23 744:5 749:4,6,10 750:4 756:12,17 757:10 764:20,22,25 765:18 767:8,10 768:1 770:14 771:12 773:24 774:1,18 775:15 778:1,3,18,20 780:8,14 782:13 796:25 798:6 803:15	encouraged 619:12 630:17 663:2 encouraging 612:9 614:3 endeavors 670:1 ended 759:22 760:18 engage 624:1 engaged 635:13 engaging 610:9 engendered 620:5 English 745:17 767:2 enhance 643:3 750:17 enjoy 628:24 enroll 603:23 692:4 795:3 enrolled 600:11 735:2 enrollment 691:25 692:10,16,23 enrollments 739:23 ensure 595:9 609:17 612:20,25 613:4,9 616:2 617:19 637:6 641:3,8 652:18 653:21 664:22 665:7 676:25 677:7 679:2,18 684:7 702:21 703:20 710:25 ensures 723:24 ensuring 615:10 622:13,17 672:17 724:20 enter 740:2 entered 685:22 entire 592:11 609:6 625:20 632:1 652:6 655:4 669:9 676:5 721:5 730:22 745:12 784:12 entitled 588:9	entity 696:8 environment 653:10 655:2 664:22 715:12 795:22 equal 724:10 726:20 727:12 equals 725:5 equipment 609:3 640:22 650:3,15 650:25 651:2 654:13 672:17 721:4 737:3,6,10 737:12 equivalent 602:19 603:7 604:1 605:5 605:6 606:13 607:9 608:18 672:4 especially 618:18 621:4 682:1 essay 628:8 essentially 615:3 617:16 618:11 624:20 634:1 735:1 741:12,14 771:17 establish 752:1 established 752:7 773:2 establishes 601:22 establishing 596:5 614:14 estimate 681:11 ethical 674:21 676:13,16,24 742:13 ethics 594:12 621:12 674:25 675:2,3,15,18 676:15 677:4,14 718:10 732:3,6,6 732:8,11,12,14,15 741:24,25 742:2 evaluate 604:17 612:16 615:2	634:23 635:10,22 637:7 642:12 646:16 656:14 657:13 680:25 712:15,17 evaluated 622:12 642:7 647:8 659:15 678:24,25 680:23 evaluates 634:21 660:9 evaluation 596:10 596:12 633:6 634:19 666:2 713:1,1,14,24 735:17,18 evaluations 596:9 631:24 633:14 634:4 636:25 712:14,16,16 713:17 events 594:7 595:3 617:16 eventually 611:15 659:5 746:24 everybody 676:6 676:17 677:8 730:24 evidence 590:8 688:22 689:1 750:2 757:8 765:16 767:24 771:10 774:16 778:16 780:6 782:11 805:11 evolution 599:8 687:3 693:24 evolutionary 599:5 600:1 687:3 Exactly 708:21 784:5 exam 612:11 613:20 614:22 708:6 EXAMINATION 591:17 744:17
effect 756:3 effective 612:4 625:18 648:11 656:2 701:17 702:2 730:25 754:25 769:9 781:2 effectively 612:18 620:4,13 652:21 677:24 702:22 efforts 727:19 748:22 762:23 eight 600:25 675:21 688:14 730:2 either 619:20 636:21,22 639:16 651:23 652:25 653:18 658:10 677:11 752:11 elect 641:22 680:21 682:6 element 637:12 751:3 775:11 elements 595:19 619:8 620:25 652:11 657:9 750:20 776:1 elevated 657:10 elevates 657:5 eligible 751:8 Elston 720:11 embryo 650:12 embryos 650:9,11 672:14 677:21 emerged 749:3 employed 592:2,12 744:24 745:12 786:15	Employer's 590:9 591:2 787:1 empowered 622:2 651:7 Empowerment 643:12 enable 604:11 616:8 626:13 633:17 644:12 648:12 654:17 679:9 683:21 717:1 730:7 enables 635:21 664:18 encourage 611:13 611:17 613:15 616:18 618:2,17 618:23 619:19 621:2,16 623:5,15 624:5 642:23 643:4,14 647:18 647:21 662:9 667:21 682:13	entitled 588:9	evaluate 604:17 612:16 615:2	EXAMINATION 591:17 744:17

examined 591:16 619:8 744:16	742:8 749:10,18 750:5 756:14,17	656:16 661:17 668:8,9 673:19	777:15 781:25	729:20 732:2,10
examining 623:14	757:7,11 764:22	675:9 683:6	explaining 710:13	732:11 734:19,21
example 611:1,2 614:24 617:4	764:25 765:4,15	694:14 699:10	754:25	741:24 746:9
625:2 626:17	765:19 767:23	712:6,7 721:13	explore 675:23	752:24,25 760:9
636:18 644:19	768:2 770:16,18	730:21 735:11	766:18	761:3 762:21
652:2 661:25	771:10,13 774:1	740:5 752:13	exploring 669:22	764:4 785:2
669:1 670:14	774:15,19 778:3	753:5,5 764:11	760:15	786:18,24 787:2
675:23 676:23	778:15,19,23,24	781:19,24 794:18	expose 643:13	787:10,15,18,19
682:19 736:18	780:6,9,16,16	experienced 621:22	extend 683:13	788:2,6,14,18,22
750:22 761:18	781:25 782:10,14	629:19 650:25	extent 703:2	789:3,11,14,17
768:17 769:2	787:2 796:25	800:2	757:24 761:5	791:13 795:4,12
791:17	798:6,6 805:12	experiences 601:19	788:8	795:14 800:6,20
examples 636:10	exhibits 636:5,8	606:2,5 608:7	external 653:18	fail 633:2
exams 608:22	712:20 713:21	experimental 642:1	721:12	failed 632:16,18,25
excellence 775:13	805:10,11	644:12,19 647:5	extremely 625:6	633:10,19,22
excellent 715:9	existence 748:3,5	655:23 656:20	645:18	730:18 742:17,21
730:8	existing 669:15	657:7 669:22	eye 611:11	failing 730:16
exception 631:10	expand 748:21	672:12 718:21	e.g 604:2	failure 655:16,23
exciting 669:13	790:23	experimentally		656:23 657:10,13
758:23,23	expanded 758:17	644:7	F	failures 657:4,6
exclusively 687:11	773:2	experimentation	Facebook 596:7	730:21
735:16	expanding 792:17	653:13 655:10	facilitation 781:11	fair 613:13 631:6
excuse 628:17	expect 613:14	656:21 673:23	facilitator 766:11	678:19 708:7
excused 743:24	expectation 735:14	716:23	facilities 653:15	fairly 624:3 655:16
803:21	736:13,25	experimenter	725:11	fairness 793:19
executed 752:2	expectations 613:5	677:22	facility 653:16,17	fall 608:14 614:19
exercise 625:11	613:7 648:9	experimenting	672:11,14	647:2 688:12
exercises 609:3	680:20	768:9	fact 646:14 759:1	739:18 748:12
626:2	expected 646:6	experiments	792:16 796:10	758:15,16,19
exhausted 643:21	673:21 679:15	639:10 640:21	797:8	768:22 773:2,5
exhibit 590:8	680:16 696:23	641:9 642:14	faculty 594:18	fallen 731:16
598:16,20 600:5,8	697:6,16,21	646:16 647:7	595:7 596:12,25	falls 748:13
602:2,11 603:9	698:24	650:18 653:22	604:14 621:14	familiar 630:9
606:16,20 607:2,5	expects 689:11	655:13 656:24	625:23 626:19	722:10,15,18,21
628:1,2,3 634:14	expedite 787:16,17	658:11 672:13	627:6 628:13	728:11,14 766:2
635:8,20 637:2,15	expensive 653:14	673:13,14,20	630:14,15 631:3	770:12 780:11
637:18 686:13,21	654:15	677:20,24 684:9	639:14 641:21	familiarized
691:20,25 695:10	experience 597:1	716:25 730:16,17	658:6 659:16,20	609:18
712:23,25 713:5	605:14,20,23	738:11 742:17,22	659:24 660:9	far 623:10 689:9
713:23 716:10	607:23 609:17	expert 650:23	663:3,8,11,21,22	714:21 735:23
717:8,11,15	612:7 615:2,17	expertise 730:4	665:20 666:1,2,7	794:1 801:5,16
718:24 719:2,6	616:15 627:4,13	explain 598:2	674:8,9,10 675:18	Farm 598:13
720:18,21 722:9	629:1,15 632:15	609:21,22 617:21	675:22 681:16,22	fashion 711:2
722:15 724:16	632:16,20 637:5	639:5 652:12,21	681:25 682:17,19	fast 683:9
728:11 732:19	640:14 645:19	660:4 661:23	682:24 683:19,23	faster 685:2
	646:5 655:18,25	700:5 729:12	711:11 712:17	features 650:11
			713:2,13,18 728:1	federal 669:20

687:15 725:25 729:15 FEDERATION 589:16 feedback 616:9 620:6 622:17,22 636:23 651:13,14 651:18 652:7 711:8 767:5 769:10 feel 595:11 605:19 612:13 615:9 621:20 622:2 627:9 631:18 644:10 649:6 652:19 659:10 661:14 666:24 683:15 731:7 734:5 feeling 683:5 feels 666:8 fellow 593:11 678:13 766:12 781:6,17 fellows 671:18 759:2 762:19 768:20 769:11 780:12,20,22 781:4,8 794:20,21 794:25 797:6 fellowship 632:14 645:23 646:21 647:4,19 687:13 687:14 fellows 669:24 felt 644:23 736:2 FERPA 645:6 fewer 690:22 740:18 field 616:21 623:18 638:21 647:10 648:23 687:7 716:6 777:13 fields 636:16 777:11 fifth 653:9 675:4 755:15,16	figure 767:6 793:3 file 680:19 685:17 686:2 files 805:12 fill 625:2 634:24 636:15 671:24 713:17 796:3 filled 631:1 filling 626:22 753:12 fills 635:14 final 642:22 661:19 666:12 755:15 finally 641:6 financial 688:20 689:16 690:7 find 607:8 616:12 616:15 621:13 630:23 646:2 648:8 662:6,8 664:3,18 667:7 669:12 681:20,21 682:11 703:9,23 704:21,23 712:3 764:7 finding 641:9 findings 658:21 fine 650:14,17 770:7 finish 772:10 Finished 685:2 first 591:15 609:10 611:10 613:2 614:4 617:4,9 621:12 623:16 627:1 631:12 641:17 648:7 667:12 675:6 686:13 693:25 698:5 703:18 711:7 712:10 714:18 718:15,21 719:21 720:9 730:2 735:24 736:21 744:15 752:16,23 753:10 753:20 754:10,13	758:5,11 760:12 763:15,19 766:10 766:12,16 769:19 771:18 775:6 783:14 784:5 796:12 797:4 first-year 594:13 630:19 662:18 665:13 674:22 675:2,18 791:17 fiscal 724:7,18 fish 672:12,13 fit 660:22 662:8,21 664:18 666:8,24 682:20 731:11 fits 613:4 659:10 664:23 five 600:24 659:20 668:7 675:13 681:13 684:2 689:25 693:20 756:2 759:18 776:7 782:17 five-minute 671:2 five-point 756:3 763:2 five-stage 753:7 five-year 684:18,19 flesh 646:1 Flipping 774:8 Floor 589:12 Florida 589:5 flow 647:8 focus 598:7 623:15 623:17 624:20 627:10 671:10 676:10 687:5 752:22 754:10,16 760:7 focused 616:1 619:12 689:4 746:23 787:14 focuses 640:14 folks 754:22 789:5 792:13 793:2 follow 646:22,24 722:4 763:2	followed 738:3 following 623:6 630:2 667:19 671:6 685:10 733:9 785:12 follows 591:16 744:16 footnote 603:7,7,10 604:6 605:4 686:21 forced 666:23 forces 777:20 forget 679:19 forgetting 721:24 forgive 738:6 forgot 649:16 form 606:7 635:10 635:21 636:16 637:3 653:18 659:8 800:12 formal 639:14 652:1 660:12 732:10 783:8 formalized 676:12 formally 641:22 format 646:6,23,25 647:20 652:9 663:10 675:10 706:20 former 779:8 forms 636:11 768:25 formulaic 646:7 formulating 613:23 forth 602:5,25 692:18 693:3 758:22 forward 680:2 found 611:6 615:7 foundation 654:4 687:8 708:13 721:22 founded 746:3 four 597:22 610:10 664:16 668:19 674:8 681:12,12 687:23 731:4	732:9 755:5 759:17,19 770:10 770:23 772:20 776:7 783:16 784:22,22 802:12 fourth 675:4 720:15 769:20 788:24 frame 623:11 668:6 797:10,10 frankly 665:16 751:15 free 636:16 frequently 596:20 674:15 715:23 716:1 730:19 733:25 740:17 Friday 701:6 771:20 friendly 765:5 front 691:20 713:14 fulfill 602:23 615:24 628:6 637:10 638:14,17 673:25 695:13 696:22 732:15 fulfilling 637:11 731:14 full 592:21 607:25 629:8,9 661:25 666:22 668:3 684:2,21 689:25 703:20 705:25 758:13 fully 609:18 613:7 617:10,20 646:16 677:8 full-time 668:8 762:3,14,22 768:16 function 609:9 functions 615:19 fund 669:14 fundamental 654:6 754:6 765:24 793:19
---	--	--	--	---

fundamentals 753:8 754:17 758:24 766:3,22 766:22,23,25 767:2,13 768:22 797:1,5,11	710:14 754:1 gaps 625:2 gas 617:5 gathered 642:15 geared 708:25 786:18 788:18	689:12 692:9 709:14,16 724:12 725:22 727:22 732:14 735:21 798:5	618:6 623:8 627:4 628:17 634:9 645:6 646:17 652:1 664:5 666:11 667:22 668:25 681:5 705:18 731:23 734:4,4 747:20 752:17 757:2 758:18 759:4,23 760:14,22 761:13 763:1,12 769:13 773:4 776:6 778:2 783:17,25 789:4 789:19 797:9,9,10 801:18,20	612:25 613:4,8,10 613:13 615:15,17 701:10,17,19,20 701:22,24 702:8 702:22,24 703:1 755:2 gradually 658:14 graduate 588:6 592:9,11,16,23 593:5,24 594:2,25 595:15 596:13,14 596:17,21 597:6 597:10,12 599:11 605:24 607:17,22 626:10 627:4 630:17 632:15 643:19 655:6 660:13 662:17,18 663:22 666:3,14 671:15 672:24 675:4,13 678:23 679:2,9,9 680:14 680:19,25 686:21 691:1,4,5,7 693:7 694:25 695:8,19 696:11,15,16,19 697:15 698:22 699:9 700:4,12,15 701:11 702:1 704:5 706:9,19 708:17 709:2 710:11 711:1,5,6 711:9,23 712:2,10 712:12,15 714:7,9 714:22,24 715:4,8 715:15,19 716:14 716:16 717:4,22 719:15,21 720:16 720:23 721:3,5 722:22 723:4,12 724:4,12 726:25 729:8,17,23 730:10,20 731:3,5 731:8,20 732:15 735:7 736:10 737:2,18 738:13 738:24 739:10
funded 683:20 687:8,11,17 688:6 688:8 759:10	general 627:3 769:8,8 801:7 generally 741:8 generate 715:11	gives 614:16,17 731:9 giving 610:18 621:20 705:19 711:7,14	good 591:25 592:1 621:19 643:25 648:2 666:8,24 672:14 675:17 679:3,19 682:25 684:25 699:5 708:9 709:7,18 731:9,13 744:23 752:18 754:23 755:20 775:17 776:8 777:2 787:24 794:17,18 800:5,19	gradually 658:14 graduate 588:6 592:9,11,16,23 593:5,24 594:2,25 595:15 596:13,14 596:17,21 597:6 597:10,12 599:11 605:24 607:17,22 626:10 627:4 630:17 632:15 643:19 655:6 660:13 662:17,18 663:22 666:3,14 671:15 672:24 675:4,13 678:23 679:2,9,9 680:14 680:19,25 686:21 691:1,4,5,7 693:7 694:25 695:8,19 696:11,15,16,19 697:15 698:22 699:9 700:4,12,15 701:11 702:1 704:5 706:9,19 708:17 709:2 710:11 711:1,5,6 711:9,23 712:2,10 712:12,15 714:7,9 714:22,24 715:4,8 715:15,19 716:14 716:16 717:4,22 719:15,21 720:16 720:23 721:3,5 722:22 723:4,12 724:4,12 726:25 729:8,17,23 730:10,20 731:3,5 731:8,20 732:15 735:7 736:10 737:2,18 738:13 738:24 739:10
fundings 595:20,23 645:14 653:19,20 683:24 684:3,5,9 684:11 686:23 688:1,1,4 689:25 690:7 695:17 721:20 722:1 731:23 732:1 736:7 738:18,22 739:1,3	genetics 599:8,9 600:2 genomics 599:8 600:2 605:17 getting 617:2 619:16 706:3 729:19 731:19 751:18 764:1 768:4 769:10 772:25,25 781:10 781:11 782:25,25 787:13 792:16 801:21	Glades 589:4 glean 706:9 go 603:19 608:6 609:11 610:21 616:5 617:18 618:25 626:16 651:7 652:17,18 656:12,19 658:25 661:15 662:5 663:3 681:25 686:20 709:11 712:19 713:14 729:18 733:4 753:17 755:10,23 760:14 765:21 770:10 779:20 784:1,3 786:6 787:15,18 791:6	governed 686:3 grad 734:19 736:7 751:8,12 755:17 773:10,13 783:25 784:13 785:21,24 785:25 786:6,11 786:19,24 787:11 787:14 788:1,9 797:15 grade 612:8,17 613:2,18 614:10 615:11 701:12 703:3 graded 772:16 graders 702:2 grades 614:14 701:14 702:18 grading 608:22	gradually 658:14 graduate 588:6 592:9,11,16,23 593:5,24 594:2,25 595:15 596:13,14 596:17,21 597:6 597:10,12 599:11 605:24 607:17,22 626:10 627:4 630:17 632:15 643:19 655:6 660:13 662:17,18 663:22 666:3,14 671:15 672:24 675:4,13 678:23 679:2,9,9 680:14 680:19,25 686:21 691:1,4,5,7 693:7 694:25 695:8,19 696:11,15,16,19 697:15 698:22 699:9 700:4,12,15 701:11 702:1 704:5 706:9,19 708:17 709:2 710:11 711:1,5,6 711:9,23 712:2,10 712:12,15 714:7,9 714:22,24 715:4,8 715:15,19 716:14 716:16 717:4,22 719:15,21 720:16 720:23 721:3,5 722:22 723:4,12 724:4,12 726:25 729:8,17,23 730:10,20 731:3,5 731:8,20 732:15 735:7 736:10 737:2,18 738:13 738:24 739:10
funds 654:3,5 669:17 678:9 682:23 696:5,6	genetics 599:8,9 600:2 genomics 599:8 600:2 605:17 getting 617:2 619:16 706:3 729:19 731:19 751:18 764:1 768:4 769:10 772:25,25 781:10 781:11 782:25,25 787:13 792:16 801:21	goal 595:8 598:6 638:8 641:20 643:13 662:9 677:15 699:8 704:25 705:1,5 710:25 729:16 760:15 goals 619:10,10 642:3 643:18,20 645:9 679:6,15 680:10 760:15 791:16	governed 686:3 grad 734:19 736:7 751:8,12 755:17 773:10,13 783:25 784:13 785:21,24 785:25 786:6,11 786:19,24 787:11 787:14 788:1,9 797:15 grade 612:8,17 613:2,18 614:10 615:11 701:12 703:3 graded 772:16 graders 702:2 grades 614:14 701:14 702:18 grading 608:22	gradually 658:14 graduate 588:6 592:9,11,16,23 593:5,24 594:2,25 595:15 596:13,14 596:17,21 597:6 597:10,12 599:11 605:24 607:17,22 626:10 627:4 630:17 632:15 643:19 655:6 660:13 662:17,18 663:22 666:3,14 671:15 672:24 675:4,13 678:23 679:2,9,9 680:14 680:19,25 686:21 691:1,4,5,7 693:7 694:25 695:8,19 696:11,15,16,19 697:15 698:22 699:9 700:4,12,15 701:11 702:1 704:5 706:9,19 708:17 709:2 710:11 711:1,5,6 711:9,23 712:2,10 712:12,15 714:7,9 714:22,24 715:4,8 715:15,19 716:14 716:16 717:4,22 719:15,21 720:16 720:23 721:3,5 722:22 723:4,12 724:4,12 726:25 729:8,17,23 730:10,20 731:3,5 731:8,20 732:15 735:7 736:10 737:2,18 738:13 738:24 739:10
funny 780:25	Gina 720:11	goal 595:8 598:6 638:8 641:20 643:13 662:9 677:15 699:8 704:25 705:1,5 710:25 729:16 760:15 goals 619:10,10 642:3 643:18,20 645:9 679:6,15 680:10 760:15 791:16	governed 686:3 grad 734:19 736:7 751:8,12 755:17 773:10,13 783:25 784:13 785:21,24 785:25 786:6,11 786:19,24 787:11 787:14 788:1,9 797:15 grade 612:8,17 613:2,18 614:10 615:11 701:12 703:3 graded 772:16 graders 702:2 grades 614:14 701:14 702:18 grading 608:22	gradually 658:14 graduate 588:6 592:9,11,16,23 593:5,24 594:2,25 595:15 596:13,14 596:17,21 597:6 597:10,12 599:11 605:24 607:17,22 626:10 627:4 630:17 632:15 643:19 655:6 660:13 662:17,18 663:22 666:3,14 671:15 672:24 675:4,13 678:23 679:2,9,9 680:14 680:19,25 686:21 691:1,4,5,7 693:7 694:25 695:8,19 696:11,15,16,19 697:15 698:22 699:9 700:4,12,15 701:11 702:1 704:5 706:9,19 708:17 709:2 710:11 711:1,5,6 711:9,23 712:2,10 712:12,15 714:7,9 714:22,24 715:4,8 715:15,19 716:14 716:16 717:4,22 719:15,21 720:16 720:23 721:3,5 722:22 723:4,12 724:4,12 726:25 729:8,17,23 730:10,20 731:3,5 731:8,20 732:15 735:7 736:10 737:2,18 738:13 738:24 739:10
further 653:22 656:20 676:13 678:18 699:25 703:15 715:3 729:9 742:24 743:1,20 785:5 793:12 803:16	give 598:1 608:24 610:11,13 611:1 611:16,21,25 616:9 620:6 621:3 622:16,21 623:6 624:20 634:2,9 635:11 636:10 641:15 645:24 648:1 652:1,6 665:25 674:17 676:5 682:23 699:21 700:3 705:25 708:1 710:17,17 723:15 724:2 731:25 733:18 736:1,18 753:18 763:22 779:15	goes 648:20 663:17 675:3 698:7 707:7 707:25 710:6 726:2,6,7,12 757:21 784:8,8 792:13	governed 686:3 grad 734:19 736:7 751:8,12 755:17 773:10,13 783:25 784:13 785:21,24 785:25 786:6,11 786:19,24 787:11 787:14 788:1,9 797:15 grade 612:8,17 613:2,18 614:10 615:11 701:12 703:3 graded 772:16 graders 702:2 grades 614:14 701:14 702:18 grading 608:22	gradually 658:14 graduate 588:6 592:9,11,16,23 593:5,24 594:2,25 595:15 596:13,14 596:17,21 597:6 597:10,12 599:11 605:24 607:17,22 626:10 627:4 630:17 632:15 643:19 655:6 660:13 662:17,18 663:22 666:3,14 671:15 672:24 675:4,13 678:23 679:2,9,9 680:14 680:19,25 686:21 691:1,4,5,7 693:7 694:25 695:8,19 696:11,15,16,19 697:15 698:22 699:9 700:4,12,15 701:11 702:1 704:5 706:9,19 708:17 709:2 710:11 711:1,5,6 711:9,23 712:2,10 712:12,15 714:7,9 714:22,24 715:4,8 715:15,19 716:14 716:16 717:4,22 719:15,21 720:16 720:23 721:3,5 722:22 723:4,12 724:4,12 726:25 729:8,17,23 730:10,20 731:3,5 731:8,20 732:15 735:7 736:10 737:2,18 738:13 738:24 739:10
furthest 719:19	given 607:14 623:10 628:12 644:15 658:23 660:3,10 663:6 664:5 673:19	going 608:7 616:2	governed 686:3 grad 734:19 736:7 751:8,12 755:17 773:10,13 783:25 784:13 785:21,24 785:25 786:6,11 786:19,24 787:11 787:14 788:1,9 797:15 grade 612:8,17 613:2,18 614:10 615:11 701:12 703:3 graded 772:16 graders 702:2 grades 614:14 701:14 702:18 grading 608:22	gradually 658:14 graduate 588:6 592:9,11,16,23 593:5,24 594:2,25 595:15 596:13,14 596:17,21 597:6 597:10,12 599:11 605:24 607:17,22 626:10 627:4 630:17 632:15 643:19 655:6 660:13 662:17,18 663:22 666:3,14 671:15 672:24 675:4,13 678:23 679:2,9,9 680:14 680:19,25 686:21 691:1,4,5,7 693:7 694:25 695:8,19 696:11,15,16,19 697:15 698:22 699:9 700:4,12,15 701:11 702:1 704:5 706:9,19 708:17 709:2 710:11 711:1,5,6 711:9,23 712:2,10 712:12,15 714:7,9 714:22,24 715:4,8 715:15,19 716:14 716:16 717:4,22 719:15,21 720:16 720:23 721:3,5 722:22 723:4,12 724:4,12 726:25 729:8,17,23 730:10,20 731:3,5 731:8,20 732:15 735:7 736:10 737:2,18 738:13 738:24 739:10
future 612:5 645:16 649:3 650:7 651:18 679:6 698:10 702:2 715:9 721:2	genetics 599:8,9 600:2 genomics 599:8 600:2 605:17 getting 617:2 619:16 706:3 729:19 731:19 751:18 764:1 768:4 769:10 772:25,25 781:10 781:11 782:25,25 787:13 792:16 801:21	goals 619:10,10 642:3 643:18,20 645:9 679:6,15 680:10 760:15 791:16	governed 686:3 grad 734:19 736:7 751:8,12 755:17 773:10,13 783:25 784:13 785:21,24 785:25 786:6,11 786:19,24 787:11 787:14 788:1,9 797:15 grade 612:8,17 613:2,18 614:10 615:11 701:12 703:3 graded 772:16 graders 702:2 grades 614:14 701:14 702:18 grading 608:22	gradually 658:14 graduate 588:6 592:9,11,16,23 593:5,24 594:2,25 595:15 596:13,14 596:17,21 597:6 597:10,12 599:11 605:24 607:17,22 626:10 627:4 630:17 632:15 643:19 655:6 660:13 662:17,18 663:22 666:3,14 671:15 672:24 675:4,13 678:23 679:2,9,9 680:14 680:19,25 686:21 691:1,4,5,7 693:7 694:25 695:8,19 696:11,15,16,19 697:15 698:22 699:9 700:4,12,15 701:11 702:1 704:5 706:9,19 708:17 709:2 710:11 711:1,5,6 711:9,23 712:2,10 712:12,15 714:7,9 714:22,24 715:4,8 715:15,19 716:14 716:16 717:4,22 719:15,21 720:16 720:23 721:3,5 722:22 723:4,12 724:4,12 726:25 729:8,17,23 730:10,20 731:3,5 731:8,20 732:15 735:7 736:10 737:2,18 738:13 738:24 739:10
FYI 800:3	G	goals 619:10,10 642:3 643:18,20 645:9 679:6,15 680:10 760:15 791:16	governed 686:3 grad 734:19 736:7 751:8,12 755:17 773:10,13 783:25 784:13 785:21,24 785:25 786:6,11 786:19,24 787:11 787:14 788:1,9 797:15 grade 612:8,17 613:2,18 614:10 615:11 701:12 703:3 graded 772:16 graders 702:2 grades 614:14 701:14 702:18 grading 608:22	gradually 658:14 graduate 588:6 592:9,11,16,23 593:5,24 594:2,25 595:15 596:13,14 596:17,21 597:6 597:10,12 599:11 605:24 607:17,22 626:10 627:4 630:17 632:15 643:19 655:6 660:13 662:17,18 663:22 666:3,14 671:15 672:24 675:4,13 678:23 679:2,9,9 680:14 680:19,25 686:21 691:1,4,5,7 693:7 694:25 695:8,19 696:11,15,16,19 697:15 698:22 699:9 700:4,12,15 701:11 702:1 704:5 706:9,19 708:17 709:2 710:11 711:1,5,6 711:9,23 712:2,10 712:12,15 714:7,9 714:22,24 715:4,8 715:15,19 716:14 716:16 717:4,22 719:15,21 720:16 720:23 721:3,5 722:22 723:4,12 724:4,12 726:25 729:8,17,23 730:10,20 731:3,5 731:8,20 732:15 735:7 736:10 737:2,18 738:13 738:24 739:10
gain 605:12 629:1 699:9 700:19 703:20	given 607:14 623:10 628:12 644:15 658:23 660:3,10 663:6 664:5 673:19	going 608:7 616:2	governed 686:3 grad 734:19 736:7 751:8,12 755:17 773:10,13 783:25 784:13 785:21,24 785:25 786:6,11 786:19,24 787:11 787:14 788:1,9 797:15 grade 612:8,17 613:2,18 614:10 615:11 701:12 703:3 graded 772:16 graders 702:2 grades 614:14 701:14 702:18 grading 608:22	gradually 658:14 graduate 588:6 592:9,11,16,23 593:5,24 594:2,25 595:15 596:13,14 596:17,21 597:6 597:10,12 599:11 605:24 607:17,22 626:10 627:4 630:17 632:15 643:19 655:6 660:13 662:17,18 663:22 666:3,14 671:15 672:24 675:4,13 678:23 679:2,9,9 680:14 680:19,25 686:21 691

740:1,10 741:13 742:10,18,21 746:4,5,8,10,22 746:23 751:14 752:23 753:1,6,14 753:23 754:20 755:7,22 758:9 760:9,25 763:21 767:1 769:18 772:22 775:16,25 776:1 777:6 779:10,14,16 781:5,14,19 784:1 784:19 785:1 788:11,13,19 789:7,12,13 791:14 794:20,21 794:23 795:1,2,5 795:8,12,15,16 796:4,15 797:25 798:5,10,14,18,21 799:4,12,16,20,22 799:25 800:4 802:1 805:5 graduated 593:7 633:20 graduates 597:2 626:4 643:7 691:9 714:18 graduation 594:8 651:11 684:4 716:19 717:1 731:19 736:16 grant 595:16 596:18 645:14 646:23 653:19 654:16 669:15 683:23 721:8 722:21 723:3,6,22 723:23 724:2,22 724:23,25 725:22 726:16,24 727:11 727:23,24 728:5,6 728:15,20,22,24 729:4,21,25 730:1 730:7,9 759:10 grants 595:19	606:4 654:12 669:20,25 684:10 687:15,16 721:14 721:19 722:3 723:18,20,24 728:7,8 729:11,13 729:15,19,24 730:11,13,15 grasp 703:18,20 704:8 great 622:17 628:25 642:4 781:23,24 greater 673:19,22 greatly 646:5 group 594:24 595:4 595:7,11 596:25 610:10,14,19 611:4 615:25 617:8 619:19 620:9 624:7 640:25 651:20,22 652:6,7 659:18 665:25 676:2,3,9 677:11 679:8,14 704:1,24 752:6,8 766:17 781:8 groups 594:9 609:2 614:23 615:23,24 617:25 619:15 620:12 624:4 644:20 659:16,24 675:11,20 699:14 755:1 766:21 769:10 771:21 grown 759:3 guarantee 684:2,18 684:19,24 guaranteed 695:17 guess 746:19 757:16 766:8 779:22 guidance 666:13 710:15 711:14,17 711:18 guide 609:3 621:5 651:1 674:13	guides 639:22 647:3 <hr/> H <hr/> H 589:6 590:7 habits 624:24 half 650:12 half-day 791:11 801:13 hand 619:5 644:9 648:20,20 685:15 708:20 779:11 handed 672:25 716:9 717:14 719:5 722:8,14 728:10 handle 621:25 625:14 handles 630:7 happen 631:20 632:2 643:6 661:24 674:14 681:10 691:19 759:19 happened 614:19 633:11 645:3,5 708:14 happening 757:22 766:16 happens 608:14 630:10 631:16 635:1 644:3 665:22 667:4 670:12 675:1 680:11 681:6 687:23 764:18 769:12 happy 599:18 662:12 758:7 hard 776:2 792:25 793:1 hate 706:12 head 625:3 health 599:13 601:4 654:2 672:14 729:14 738:2	healthcare 684:22 healthier 751:20 hear 652:8 661:8 663:16 665:8 698:8 703:25 796:4,9 800:9 heard 653:9 hearing 588:10,11 591:1,11,18 600:7 602:8,13 603:9,16 603:19 607:4,7 629:24 630:4 634:7 636:7 637:17 639:5,12 653:24 654:8 667:22 668:10 671:1,3,8 676:7 685:4,7,12,13,16 685:20,24 686:8 688:10,16 689:8 689:21 690:10 691:12 697:22 698:1,8,9,15,18 702:11 703:18 704:13 705:13,17 705:23 707:1,12 707:16 708:7,15 709:4,25 712:19 713:20 714:3,17 714:19 716:4 717:10 719:1 720:20 721:12 725:15 727:15 732:22 733:2,6,11 733:14,16 739:13 741:6,16,20 742:25 743:20,23 744:1,5,7,12,18 746:13,16 750:4 757:10 759:11,15 765:18 768:1 771:12 774:18 778:18 780:8 782:13 785:9,14 787:1,22 788:12 789:24 790:7,25 791:6 792:4	793:25 794:13 800:14 801:2,11 801:12 803:13,18 803:20,24 804:5 805:10 heavy 628:24 held 592:10,15,18 745:11 759:23 760:12 805:7 help 621:22 623:9 633:7 641:7 643:20 645:20 649:20 655:19 657:12 662:23 663:18 665:20 674:12 679:21 710:8 731:6 763:21 765:23 772:8 784:3 792:23 793:2 796:10,12 helped 669:11 helpful 602:14 617:15 703:24 773:15 helping 636:11 645:9 668:21 730:20 731:5 753:23 helps 720:24 762:23 793:12 HHMI 759:9,11 789:10 high 605:10 606:5 614:24 626:17 655:16 656:23 690:18 693:11 723:19 793:8,13 higher 710:21,24 711:16 highlight 757:14 759:7 760:24 highlights 758:7 772:2 highly 758:20 793:23 high-end 650:24
---	--	--	--	--

653:16 high-impact 678:17 hired 748:14,17,17 hires 788:23 hiring 748:18 historians 769:2 history 758:14 767:2 769:2 777:12 hold 619:23 695:13 697:3,6 792:7 holding 700:11 home 599:25 668:16 hope 622:20 657:16 677:15 712:11 hoping 611:12 663:11 781:18 hour 697:1 701:9 Hourly 672:2 hours 608:23 609:20 619:21,22 620:16,18,23,24 621:10,25 677:16 677:25 678:1,3,5 678:9,13,16,19 697:6,9,11,16 699:1 703:20 710:8 771:19 Howard 598:14 759:14 huge 664:16 675:10 Hughes 598:14 759:14 human 599:9 humanities 762:11 788:21 789:3 790:3,9,13,14,17 790:19 791:5 792:19 humans 650:11 hundred 618:23 693:11 779:24 Hunter 719:21,22 hurts 775:21 hypothesis 642:2	644:6,11 hypothetical 706:12 707:8,15 708:3,10,12,14,23 hypothetically 645:4 <hr/> I <hr/> idea 658:9 669:16 775:3 783:13 ideal 683:12 ideally 656:21 755:18 ideas 658:6 669:22 766:19 797:8 identical 713:11 identification 606:17 716:10 717:15 719:6 722:9 767:10 identified 590:8 603:10 686:18 712:14 742:9 identify 667:4 683:21 686:13 716:11 717:16 730:3 identity 792:8,8,18 Illinois 589:13 805:6 imagine 662:11 imaging 653:16 immunology 599:9 impact 647:10 751:12 impatient 618:18 Imperial 593:9,13 importance 613:21 important 614:2 624:15 625:11 627:9 628:10 640:23 645:17,18 646:12,15 655:5 657:17 700:6 704:4 739:3,6 754:9 758:21 759:25 766:14,17	775:11 783:15 794:3 importantly 645:13 652:20 impossible 650:22 impression 624:20 impressive 777:14 improve 604:12 622:24 631:19 632:3 646:5 650:21 792:21 improving 793:11 inappropriate 623:23 636:24 702:8,14,24 incidental 699:12 include 595:15 629:8 642:14 709:1 724:25 725:10 726:17 731:14 797:3 included 684:18 728:24 776:11 includes 629:9 663:8 684:20,21 684:22 727:3 including 594:12 653:19 655:17 679:8 682:4 689:25 inclusion 754:24 761:20 762:17 772:5 inclusive 768:18 incoming 665:13 665:17 691:4 inconsistent 702:8 702:15 incorporates 594:4 incorrect 761:25 increase 692:25 increased 667:6 incredible 760:10 incubator 760:10 independent 638:9 649:23 651:8 657:15 673:7	716:25 independently 656:1 737:7 indicated 689:24 indirect 725:1,2,4,8 725:18,21 726:2,6 individual 595:24 610:20 611:5,15 612:24 636:3 646:15 651:23 656:10,12 659:20 668:18 718:20 729:20 730:24 735:21 740:5,25 740:25 769:16,17 779:15 individuals 596:19 611:12,13 737:5 801:4 industry 651:9 inexperienced 612:14 inextricably 700:8 inform 621:17,17 689:15 informal 641:24 651:25 743:16 information 612:1 616:19,23 623:10 623:22 624:19,21 635:12 636:20 637:5 663:6 700:19 704:6,8 710:14 723:15,17 723:19 749:19 756:25 765:9 767:17 771:4 774:10 informing 784:6 informs 681:23 690:6 ingredients 738:9 initially 646:25 746:22 innovation 647:10 input 680:15 inquiry 626:14	644:22 instance 611:10 736:6 741:1 instances 631:6 668:7 740:1,21 741:7 742:11 institute 598:14,15 605:17 654:2 721:25 729:14 759:9,14,18,22 760:1 789:10 795:11,14 institutes 759:19 institution 681:17 681:24 682:20 737:25 institutional 676:19 737:9 instruction 733:18 instructor 609:4 631:18,23 632:19 633:7,13 636:21 702:3 710:24 711:11 713:25 735:11,17 instructors 609:6 614:13 777:9 instructor's 609:16 integrative 599:9 599:25 687:4 integrity 594:14 674:24 intellectual 659:11 664:19 667:20 682:21 718:11 739:5 intended 708:25 792:21 intending 711:6 796:11 intensive 605:23 648:14 interact 594:19 596:14,19 611:20 618:13 620:13 659:24 663:22 interacting 637:12
--	--	--	--	--

interaction 657:23	investigator 639:17	January 670:18	keys 772:3	803:7,12
interactions 641:24	714:15 724:19	Jersey 589:17	kind 618:4 624:9	knowing 619:6
666:15 677:10	investigatory	jives 714:21	639:9 652:13	622:2 708:2
interacts 657:21	787:21	job 592:7 616:9	668:24 677:20	knowledge 612:1
interdisciplinary	invite 764:4	635:5 648:11	681:9 732:5	618:25 645:19
599:10	invited 659:17	699:5 701:17	751:17 752:13,19	657:16 740:9
interest 630:22	760:18 761:15	702:21 709:7,18	753:3,22 754:4	749:19 754:2
664:21 667:20	769:24 770:2	745:6 755:23	757:25 758:6	756:24 757:1
668:23 669:11	791:24 795:10	777:3 784:1 800:5	762:8 764:1 765:1	765:8 767:17
682:21 714:14,18	inviting 630:16	jobs 782:25,25	769:13 770:4	771:3 774:10
714:21,22,23,25	invoke 675:17	join 657:25 666:9	775:10 776:9	782:5 797:17,24
715:3 731:11	involve 639:8,10	682:25 683:21	780:3 781:18	798:20 799:3
741:13 769:8	655:14 677:21	739:7	783:13 784:17	801:3
787:24	680:8 741:11	joining 670:20	785:2	known 597:20
interested 595:2	involved 609:1	joint 597:16,25	kinds 643:22 755:2	598:11 759:8
663:25 714:10	647:13 718:6	598:14 599:4	772:6,7,7	knows 656:22
715:8 760:14	732:12 742:3	600:13,17	know 601:9,10	708:4
761:17,21,23	748:18 756:20	jointly 720:13	617:1 670:4	
779:10	777:16 781:20	journal 642:13	688:11 690:22	L
interesting 643:1	782:19 784:12	716:13 717:18	692:14 693:5	lab 609:3 638:20
777:10,12 779:6	793:20 802:19	judgment 621:19	694:16,20 696:1	639:6,8,15,24
783:12	involves 608:20	jump 705:11	696:10,18 701:17	640:22 642:10,21
interests 659:11,21	640:2 645:22	June 592:17 756:19	702:12 706:18	644:4,4 649:24,24
662:7 664:3,19	646:25 650:14	779:17	708:13 709:25	650:3 651:20,21
669:5,8 675:14	655:16 666:13	junior 718:5 742:3	721:10 725:4,7,16	654:20,22 655:3
739:5	672:10 675:20	779:17	725:18 726:5	655:11 656:2,25
internal 653:20	676:17 747:24	justification 722:19	739:20,22,24	657:18,25,25
728:14 737:24	760:11 790:24	justifications	740:14,20 741:8	658:2,25 659:3,5
interns 763:16	in-depth 661:17	723:25	748:8 750:12,22	661:9,18,25 662:6
interrupting	irrelevant 727:3,4	Juvenile 721:22	751:18,23 755:13	663:4,12,13 664:1
689:20	issues 594:18 597:2		757:16,22 758:2,6	664:2,5,17,22
interview 659:18	613:11 621:9	K	758:13 760:8,13	665:7 666:9,17,22
659:19 777:4	625:8,9 646:10	keep 637:7 679:21	761:14,20 764:15	666:24 667:1,4,7
interviewees 660:8	652:8 698:10	776:2 779:11	769:21 773:1,16	667:9,9,15,16,23
660:9	706:6	keeping 708:25	775:8,9,21,25	668:2,12,16 669:3
interviewing	ITCs 789:6	709:7,18	776:6 777:7,11	669:7,10 670:2,3
671:24 777:1	item 728:17	keeps 705:18	779:13 780:25	670:20 671:11,12
interviews 782:25	items 725:7 728:18	709:17	781:18,21 782:22	671:16,19,22
783:1	728:18,19	kept 749:21 757:3	783:15 784:17,21	672:8,10,16,19,19
intimately 718:6	iterative 751:2	765:11 767:20	784:24 785:25	672:22 673:11,11
intimidating	It'll 763:11	771:6 774:12	786:7,8 787:3	673:12,15,17,18
621:14	ivy 752:9	778:11 782:7	788:12 789:22	673:25 674:21
intrinsic 709:15	ivy-plus 752:8	key 595:18 612:23	793:19 796:21,22	676:1,13,14,17
introduce 732:18		613:5 641:2 644:2	796:23 797:8,18	677:12,17,22
introduced 747:22	J	644:10 645:10,16	797:23 798:23	678:2,6,10,13,20
introduction	James 719:20	648:10 649:14	799:14,18 801:5,8	678:24 681:8,12
648:22	Janelia 598:13	650:25 653:5	801:22,25 803:2,5	681:20,21 683:1
		657:14 672:15		

683:11,21,25 684:6 697:19 698:23 714:8,13 714:15,20,25 715:4,14,15 716:15,17,18,21 716:25 717:4,22 719:15 720:4 721:4 722:25 723:2,12 724:5,19 726:3,8,13 728:6 729:8 730:17,22 731:6,7 737:4,10 737:13,14,19 738:3,4,5,14 739:6 742:23 743:9,11,17 Labor 588:1 805:3 laboratories 637:24 638:12,22 663:7 laboratory 626:2 637:21 639:9 640:20 641:4 650:8 653:10,21 654:17 656:9 668:24 682:7,13 715:12 719:7 721:5 labs 605:25 641:13 661:12 663:18,19 663:25 664:11 665:1,14 669:17 677:2 683:2 697:20 698:23 714:9 731:4 732:2 738:17 lab's 664:21 lab-based 608:25 609:4 lack 684:10 laid 724:14 776:10 language 723:25 777:9,11,13,18,19 777:24 778:7 798:4,11,12,25 languages 777:16	large 619:18 624:15 644:13 648:8 652:19 672:11 674:13 766:25 largely 633:8 larger 647:3 772:25 largest 718:20 759:22 lastly 622:4 637:1 751:1 lasts 763:15 late 677:23 683:12 latest 747:18 latitude 669:22,24 launching 753:9 755:16,17,19 782:17,20 783:13 law 686:4 lay 680:16 681:19 laying 646:25 layperson 738:7 lead 681:19 708:19 741:9 762:20 leading 615:20 670:6 699:5,23 746:14 781:12 leads 655:22 league 752:9 learn 609:16 615:17 636:25 650:22 657:12 663:17,24 700:5 702:1 704:23 711:2 754:23 755:3 770:7 772:9 796:10 learned 755:12 learning 604:17 610:3,7 614:6 619:10 620:12 625:17 709:21 746:20 747:19 748:7 750:16 752:20 754:24,24 755:1,5 766:15	768:9 770:3,11,23 791:16 794:18 learns 730:25 leave 613:7 637:20 656:2 661:10 681:16 683:18 leaving 683:5 716:24 lecture 609:24 611:3 622:5,9,11 622:18,22,24 623:25 624:6,15 699:15 700:1 703:12,13 706:15 710:17,21,24 711:5,7,15,15,17 lecturer 649:3 711:11 lecturers 624:25 625:25 626:6 734:10,18,23 760:9 763:19 789:18 lectures 608:24 610:1 617:22 625:14 633:9 675:19 700:21,25 701:3,7,8 706:7 711:5 734:25 lecturing 609:16 623:13 629:8,9 754:25 769:9 led 636:11 669:9 740:22 768:22 leeway 649:5 left 716:18 legacy 715:11 letter 614:14 686:7 688:23 690:2,6 788:25 letters 688:18 689:5,15 let's 612:6 628:1 671:25 673:5 693:25 709:17 712:19 742:16 753:17 765:21	770:10 771:15 777:22 level 594:12 626:14 663:22 665:20 678:4 695:5 723:19 734:18 790:22 levels 615:9 liberal 626:17 LICENSE 588:25 805:15 lies 599:22 lieu 603:24 605:18 606:2 life 750:25 784:12 limit 618:24 677:16 limited 677:25 line 644:22 757:2,2 783:16 linked 700:8 list 660:19,24 661:5 713:15 719:9,10 720:8 724:3 742:8 759:21 772:24,24 773:4,7 listed 605:21 627:12 692:2 715:23 718:8,14 718:15,19,21 719:14,21 720:12 720:14 723:11 724:21 727:11 728:18 742:12 listen 622:10 777:20 listening 610:17 lists 602:18 literally 672:24 literature 616:1 676:24 750:15 800:3 little 603:3 622:15 654:24 668:7 670:20 756:10 759:5 763:11 764:7 767:5 773:1 783:12 784:25,25	living 735:13 LLP 589:4 load 626:17 local 605:10 682:10 764:8 logical 644:8 647:8 logically 655:19 London 593:10,10 593:17 long 592:15 605:23 667:23 682:2,10 696:25 697:8 706:12 748:3 769:13 771:19 777:12 longer 598:5,6 642:24 673:20 680:5 734:5 longterm 643:18 656:1 look 602:4 611:12 612:19 614:23 620:3 621:21 624:16 628:1 636:2 656:8,11 665:10,17 701:15 728:17 756:8,23 757:17 758:4 765:7 771:3 774:1 774:8,25 775:1 778:3,8,23 looked 753:2,10 looking 594:1 602:10 613:3 616:1 626:21 652:14 672:10 720:6 751:16 756:13 761:23 767:16 798:13 looks 615:3 757:2 lose 632:9 683:23 loses 741:12 loss 680:8 683:15 684:5 741:11 lost 623:22 lot 625:1 653:13 706:5 747:17
---	---	---	--	--

753:5,12 754:23 755:3,12,20 756:9 763:23 768:14 777:21 783:18,21 lots 772:6 Lou 720:13 Love 716:15,16 717:19,20 719:13 720:6,12 low 615:11 726:9 lower 614:25 660:23 726:10 lunch 685:8 764:6 lunchtime 663:10	715:21 map 644:15 658:18 658:20 776:5 Mapp 720:6,11 March 721:21 745:3 marine 605:24 665:13 marked 598:16,18 606:18 634:12 716:7,9 717:12,14 719:3,5 722:7,8 722:13,14 728:9 728:10 749:4,6 756:12,14 764:20 764:21 767:8,9 770:14,15 773:24 773:25 778:1,2,20 778:22 780:14,15 market 755:24,24 782:24 784:1,4 marking 776:14 master 761:5,7,7,9 761:10,18 762:1 master's 601:1,2,5 745:20,21 match 682:25 matched 661:11 matching 630:7 material 616:2 617:10 619:7 708:9 709:21 710:9 791:19 800:23 materials 708:5 755:25 784:3,6 matriculate 660:17 matriculated 661:3 matter 588:9 755:22 805:4 matters 591:3 775:21 mauerbach@db... 589:14 maximum 728:3 MBL 604:3 605:24 665:16	McClintock 719:20 MD-PhD 597:19 599:11 600:13 mean 639:6,19 679:23 686:24 689:18 695:16 698:2 704:15 708:15 711:4 734:18 747:14,16 747:16 748:2 750:9 751:5,6 754:19 755:18 769:21 773:14 774:23 776:22 782:20 784:5,7 789:23 797:10 798:13 802:5 803:6 Meaning 735:13 meaningful 637:13 means 598:3 637:11 645:10 662:12 667:11 747:17,19,21 749:1 750:14 755:24 759:3 776:23 781:6 783:1 meant 604:6 measure 650:20 mechanism 647:25 679:1 730:9 medical 597:20 598:14 599:12 690:1 759:14 medicine 598:11 meet 594:17 597:1 640:8 641:22 645:25 662:17 664:1 674:16 676:2 679:11,17 683:8 729:22 732:6 766:11 771:20 meeting 596:16,18 598:5 629:21 641:25 647:24	648:2 651:22 665:25 675:21 677:11 679:7,14 679:22 735:23 758:21 789:8 792:17 meetings 640:25 642:8 644:3,4 649:18,20 651:20 674:14 meets 771:19 MELISSA 589:13 member 639:15 658:6 666:2,7 674:9 675:18 681:22 682:17 683:23 728:1 729:20 members 625:23 654:23 672:10,20 674:16 679:20 681:25 713:2,18 732:2 734:22 737:14 738:5 749:17 764:5 768:16 769:23,24 783:22 786:12,18 787:10 788:22 795:4 800:6,20 memorizing 614:1 memory 688:23 689:7,10 mentee's 715:11 mention 653:9 661:8 683:22 760:25 768:15 787:2 788:20 789:16 mentioned 594:21 595:5 599:3 600:13 617:21 622:4 628:10 650:2 655:9 658:17 688:9 720:6 735:20 752:13 763:20 766:13 768:21	782:23 789:11,15 801:14 802:4,10 mentor 605:14 615:22 631:19 639:21 640:9,12 641:1,3 649:7,10 650:5 651:4,16 676:3 683:5 mentored 593:6 608:24 639:25 648:10 682:2 711:2 718:2,19 mentoring 623:24 629:20 641:22 648:6,24 661:17 664:23 665:1,5,20 665:20 673:25 674:4 715:12 769:11 mentors 641:13 683:18 mentorship 605:15 609:4 640:19 674:12 675:17 682:10,11 711:10 723:2 met 627:23 629:2 633:12 687:21 736:3 740:6 metabolism 599:12 methodology 622:10 627:5 methods 610:7 751:23 Michael 719:21 Michigan 589:12 microbiology 599:12 microinjection 650:18 microscope 650:16 microscopy 650:15 650:24 middle 705:11 midterm 612:11 midwest 762:21 milestones 680:17
--	--	---	--	--

millimeter 650:13	629:7 654:12	598:1 762:7	655:13 658:21	654:4 721:9,13
mind 640:7 753:3	Monica 720:7,10	national 588:1	663:16 669:9,11	722:1 728:3
minimal 680:9	monitor 676:20	652:4 654:2,4	669:16 681:20,21	number 612:23
minimum 664:14	months 658:15	687:8 729:14	681:24 682:7,13	622:14 623:8
674:7	morning 591:25	760:2 805:3	682:13,19 683:21	664:12 672:11,18
minority 595:9	592:1 677:23	natural 614:23	684:10 686:14,15	675:20 677:16
minute 744:2	732:21 804:1	615:1	699:20 730:1	678:5,19 681:15
758:11	motivation 680:8	nature 624:7 657:8	758:4 760:17	690:21,22 692:2,3
minutes 610:12	741:12	680:6 715:5	763:16 764:6	692:8,12,16,25
701:7,9 733:5	mouth 631:1 773:1	762:25 763:19	769:21,22 780:24	693:3,11 697:16
785:7	move 600:4 605:12	near 800:3	788:23 797:8,9	700:22,25 701:2
mirrors 753:4	636:4 637:14,21	nearly 614:6	798:7	747:15 750:15
missed 742:5	645:8 681:23	632:23	news 760:5	754:18,21 764:22
missing 720:8,9,10	682:6 683:2,11	necessarily 614:1	newsletter 596:6	768:25 769:5
805:12	705:10 713:20	621:1 661:4	nice 775:18 776:23	775:4 781:9
mission 672:15	717:7 718:23	702:13 706:3	777:24	numbers 701:3
729:5,9 730:4	720:17 732:18	726:15 738:19	night 677:23	727:8 766:25
749:12,13,15	750:1 757:7	761:21 769:19	NIH 653:19,25	nutrition 599:13
750:9 793:13	765:15 767:23	necessary 654:13	654:2 669:21	NW 589:17
missions 793:7	771:9 774:15	654:14 751:17	721:9,13 722:1	
mistake 613:22	777:25 778:15	necessity 750:21	732:8,15	O
misunderstood	782:10	need 616:17 618:25	NLRB 805:4	Object 800:12
734:13	moved 603:17	642:14 643:3	nonacademic 621:9	objection 600:6
modality 751:18	780:5	644:5 654:21	nonlesson 708:9	603:14 607:3
mode 636:22	movements 617:5	684:6 685:6 686:4	nonperformance	636:6 637:16
699:10	617:13,13	734:5 738:22	633:5	688:21 689:18,19
model 650:10	movies 616:21	758:21 783:5	nontenure 734:22	690:9 691:11
671:13 677:14	617:12	needing 681:20	non-biomedically	694:13 697:23
752:1,4,21 753:1	moving 610:1	783:4	687:6	698:7,12 702:10
753:8 756:3 763:2	639:10 680:2	needs 618:20	non-lab 684:12	704:14 705:2
765:22 768:5	731:1 769:5	664:24	non-majors 626:1	707:8 712:18
770:5 782:17	MSTP 597:20	negatives 706:5	norm 716:6	713:6 716:1 717:9
784:25	multiple 604:13	negotiated 725:25	normal 656:24	718:25 720:19
models 747:22	640:2 641:24	neighbor 610:10	normally 611:22	726:22 732:25
modest 677:13	655:12 658:4,15	Nelson 748:19	Northwestern	746:12 750:3
modification	666:13 694:3	nervous 623:3	745:18	757:9 765:17
655:14	721:21 801:18	625:3	notation 776:15,16	767:25 771:11
molecular 593:18	myChoice 643:12	network 643:16	Note 794:11	774:17 778:17
598:11,12 599:2,4	myriad 662:3	759:8 760:2	notebook 656:9	780:7 782:12
599:12		neurobiology	noted 698:2,15	786:20 787:12
MOLS 588:10	N	599:13 600:3	notes 620:1	789:22 790:4,20
moment 613:19	N 589:1 590:1	neuroscience 599:6	notice 588:10	793:15 794:12
671:20,24 684:17	name 591:19,21	never 614:18 629:9	731:22 757:18	796:16 800:22
766:14 803:25	721:24 744:20	731:15 734:10	notices 731:25	803:25
moments 649:18	748:4 758:13	796:7	notified 697:10	objections 698:4
Monday 701:5,6	792:3 796:19	new 589:17 596:5	novel 657:1,3	objectives 610:2
money 628:5,20	names 597:25	598:23 644:19	NSF 653:20,25	619:11

obligations 742:13	772:19,24 785:20	714:3,17,19 716:4	674:16 783:22	774:12 778:12
observation 779:16	787:3 788:9,10,11	717:10 719:1	802:15,20	782:7
789:6,8	790:8 791:9 795:8	720:20 721:12	one-on-ones 649:19	organization 595:1
observations	797:4 798:8,9,15	725:15 727:15	one-week 605:23	595:22 646:19
619:25 754:14	801:15,16 802:11	732:22 733:2,6,11	606:1	652:10
observe 609:15	802:11	733:14,16 739:13	ongoing 660:2	organizational
616:7 619:25	offering 798:17	741:6,16,20	663:13,17,24	748:10
664:25	offerings 763:3	742:25 743:20,23	Onie 720:6,11	organizations
observing 620:2	768:11,14 775:3	744:1,5,8,12,18	online 630:25	721:21
627:5	787:15,18 788:13	746:13,16 750:4	635:24 672:4	organize 594:6,8
obtain 600:22	offers 660:16	757:10 759:11,15	open 791:14	762:20 766:20
678:8 798:1	662:10 711:21	765:18 768:1	open-ended 618:5	organized 764:2
obtained 734:20	770:22 786:11,17	771:12 774:18	618:7 620:25	organizing 595:2
obvious 775:10	787:19 788:6	778:18 780:8	662:23	596:11
obviously 624:17	795:7 802:14	782:13 785:9,14	opinions 775:19	orientation 594:6
739:3 752:5	office 592:9,11,16	787:1 788:12	opportunities	608:4 753:8,19,19
occasion 630:13,15	593:24,25,25	789:24 790:7,25	604:8 643:8,15	753:21 754:4
639:2 645:13	594:5 595:15,17	791:6 792:4	659:23 663:16,23	760:13 763:4,9,15
669:7 680:5	595:23 596:2,7,8	793:25 794:13	665:8 700:15	763:17 764:13
occasionally	608:22 609:20	800:14 801:2,11	758:5 772:6	765:22 791:11,22
660:21 664:15	619:21,22 620:15	801:12 803:13,18	opportunity 611:16	791:24 795:19
695:5 761:16	620:18,23,24	803:20,24	611:20 623:5	796:4 801:13
789:13 795:15,16	621:9,25 635:2,16	off-campus 663:15	628:25 630:8	802:4
occupational 738:1	660:12 680:18,19	off-site 638:22,25	634:2 643:16	orientations 660:3
occur 608:15	680:25 697:6,11	off-topic 619:3	655:6 664:3 667:7	orienting 796:8
733:25 740:17	703:20 710:8	709:14	682:25 700:4	original 682:8
742:17	731:18 748:13	oh 739:14 741:7	710:12 711:1	729:6 805:8
occurred 740:15	Officer 588:11	765:1 776:7	731:9 755:9 764:4	originally 682:18
occurring 741:2	591:1,11,18 600:7	779:21 797:2	766:10	OSHA 743:14
occurs 608:4	602:8,14 603:9,16	okay 591:5 603:18	opposed 687:13	ought 628:11
742:20 769:15	603:19 607:4,8	741:7 757:20	788:14	outline 647:6
October 592:6	629:24 630:4	766:7 768:15	opposes 686:2	688:20
offer 601:1 607:1	634:7 636:7	771:23 776:5	opt 606:12 607:24	outlined 690:1
607:25 626:12	637:17 639:5,12	788:3	options 607:9,12	outlines 607:11
660:10,12,16,18	653:24 654:8	old 686:16	608:18 643:12	628:9 637:9 679:5
684:1 689:24	667:22 668:10	once 633:23,25	oral 648:1 651:13	output 656:13,14
761:9 763:5	671:2,3,8 685:4,7	734:2 784:9	651:14,19 652:25	outreach 605:16
766:24 768:23	685:12,13,16,20	801:16	orally 641:2 712:4	outside 621:16
773:21 775:23	685:24 686:8	once's 750:17	712:5	690:17 736:8
783:9 787:9 788:1	688:10,16 689:8	ones 660:10 691:23	order 607:15	737:22
788:17 790:18	689:21 690:10	728:23 729:1	642:15 648:11	outstanding 689:4
791:3 797:5,9	691:12 697:22	ones-on-ones	659:9 677:4,9	overall 610:1 614:2
801:3	698:1,9,15,18	641:18	737:7 787:15	664:20
offered 599:1 608:3	702:11 705:13,23	one's 639:19	ordering 672:16	overarching 642:3
693:19 735:7	707:1,12,16 708:7	one-on-one 596:20	ordinary 749:21	647:3 668:23
737:16 738:4	708:15 709:4,25	640:11 643:23	757:4 765:12	overhaul 596:4
743:7 771:16	712:19 713:20	644:3 649:17	767:20 771:6	overlap 659:11

overloaded 623:21
overly 613:25
Overruled 690:10
 725:15 794:13
oversee 593:25
 660:11 723:22
overseeing 594:4
oversees 688:25
oversight 595:20
oversubscribed
 758:20
overview 758:6

P

P 589:1,1
pace 623:1,9
pacing 623:2,22
package 688:20
 689:16 690:7
page 603:9 607:11
 628:7 686:13,14
 686:15,20 691:24
 695:11 719:9,20
 719:24 720:8,9,9
 722:16 728:12
 758:5 765:2
 767:13 780:20,20
 796:25 798:13
pages 598:23
 606:23 732:19
paid 627:20,24
 672:1 695:16
 696:1,2,2,4,5,6
 780:3 794:20
 802:24 803:8
pairing 624:9
panel 764:10
 795:20,23
panels 604:14
paper 716:12,17,19
 716:23 717:1,4,17
 717:25,25 718:9
 719:22 720:15
 737:1
papers 608:22
 613:3,9,12 645:12
 677:4 719:23

paperwork 712:7
paradigm 657:7
paragraph 646:2
 788:25
parameters 668:25
part 617:4 629:12
 635:5 646:22
 647:22 649:24
 655:5 659:12,18
 662:24 669:19
 674:13 675:19
 686:17 690:6
 696:12 700:6
 710:25 711:3
 714:23 716:24
 717:21,25 729:5
 739:6 750:22,24
 751:6,17 752:6
 759:3,7 775:1,16
 777:25 779:7,13
 781:7,7 783:24
 788:2 795:21
participate 611:8
 697:21 751:9
 798:19,22 799:6
participated
 716:22 719:16
participates 691:3
participating
 765:25
particular 608:13
 610:11 619:8
 624:10 633:3
 640:21 642:19
 646:2 661:22
 664:21 667:14
 675:23 699:10
 727:19 731:8
 734:1 737:4
 740:21 769:6
 788:20 794:4
particularly 605:11
 610:8 624:15
 625:25 626:15
 630:18 703:17
 781:15
parties 591:3

part-time 668:9
pass 634:2 685:3
 736:2,3
passed 736:5
pass/fail 772:16
pathology 598:10
 598:12
patience 618:15
pattern 636:13
PAUL 589:7
Pause 714:5
pay 616:17 628:9
 628:15 629:2
 654:22 695:12,14
 695:16,19,21,23
 696:1,12,16
 703:22
PEARLMAN
 589:7
pedagogical 700:16
 781:10,21
pedagogy 626:12
 711:22 735:6
 777:13 778:7
 784:13 798:4,25
peer 750:22 795:4
peers 766:11 800:1
 800:2,3
penalize 615:9
people 612:14
 621:23 623:3
 625:1 650:21,25
 662:11 691:17
 719:14 720:10
 747:20 748:18
 760:11,14,19
 761:12,16 763:16
 763:17,18 771:20
 772:8,10 773:7,17
 775:19,21 777:7
 779:10,17 781:22
 784:6 786:14
 792:23 794:17
percent 618:23
 646:18 726:12
percentage 615:5
 690:19 691:14

696:11 725:24
 728:1
perfect 689:11
perform 605:22
 615:8 627:24
 638:19 640:21
 641:5 649:21
 655:25 657:17
 667:5 682:22
 687:19 717:20
 740:12
performance
 614:16,17 615:3,4
 631:16 632:3,10
 633:4 635:11,23
 701:25 735:12
 736:2 800:19
performed 633:20
 649:2 672:18
 702:19,20 717:4
 724:21
performers 614:24
 614:25
performing 606:7
 631:19 632:1
 724:22 740:11
 741:15
period 602:25
 658:15 668:15
 670:19 679:22
 690:24,25 787:20
 788:6 802:12
periods 620:19
permeates 783:13
permission 685:17
permitted 705:25
 737:5
person 611:11
 692:1 723:18,21
 762:17,18 784:9
personal 659:22
 660:21 669:23
 682:5 687:13
 740:4
personally 669:12
 679:11 702:4
 733:20 789:25

personnel 723:7
 724:3,22 726:17
perspective 704:9
 751:14
perspectives
 617:19 747:24
pertinent 728:22
petition 670:8
 722:7,13
petitioned 605:9,13
petitioner 588:7
 589:10 686:2
 689:4,13 706:1
 716:7,10 717:8,10
 717:12,15 718:24
 719:1,3,6 720:18
 720:20 722:9,15
 724:15 728:9,11
 732:19 733:2
 742:25 785:15
 787:17 803:18
PETITIONER'S
 590:18
PhD 591:14 593:10
 593:16 594:2
 597:21 600:10,11
 600:16,18,22
 601:18 604:21
 606:4 607:9,14
 608:17 613:22
 626:9,23 627:15
 628:4,20 629:6,12
 630:7 631:2,7
 638:2,5,8 647:12
 649:11 650:5
 651:4,17 654:12
 657:12 658:24
 661:20 673:5,10
 673:16 674:1,6
 676:14 678:1,8
 679:11 722:24
 723:1 734:7,9,18
 734:20,24 744:14
 745:18,22
PhDs 601:15
 786:15
PhD-level 625:25

626:6 734:17	673:22 674:3	portion 602:2	710:12 750:11	607:12 622:12
Phillipson 720:14	Playing 796:19	PORZIO 589:6	751:4,7,12,16	658:9,17 689:24
philosophy 614:15	please 591:11	685:13,23 686:6	781:23	pre-award 723:24
660:6	593:2,22 594:23	posed 610:11	practices 623:4	primarily 609:1
photographic	598:25 603:11	position 592:10,15	652:17 747:25	625:22 627:10
689:7	604:5 615:21	734:23 772:11	769:22	654:14 729:13
phrase 603:6	629:23 637:1	787:23	practicing 622:21	752:22 758:9
physical 597:17,19	653:12 699:22	positions 592:18	768:9	762:11 766:21
639:10	704:18 707:19	695:15 745:11	pre 595:18	789:12 795:14
physics 599:12	774:22 778:24	762:8,9	precise 647:6	primary 599:22
PI 639:17,23	780:23	positive 794:16	690:22	616:1 622:10
641:13 661:18,25	plenaries 763:25	possibility 683:22	precisely 616:4	639:21 645:12
662:8 664:1,23	plenary 763:25	possible 620:14	644:25 652:12	672:9 673:14
665:1,19 666:16	plot 614:22	649:21 664:18	724:9	693:16 699:8
666:19,23 684:5	plus 671:23 724:13	692:21 693:12	predates 779:7	700:3,14 704:25
684:10 715:4,11	728:7 771:20	709:13 752:12	predict 621:1	705:1,5,6,20,21
730:1 731:6	point 607:7 609:25	753:4 758:25	predominates	706:19 757:18
pick 613:21 665:4,7	610:2 612:21	possibly 692:16	617:23	762:13,16,20
picking 665:4	617:11 622:19	783:7	preempting 705:14	802:22
picks 667:12,13	624:18 625:5	post 651:11 660:1	prefer 614:4	Prince 590:4 591:8
picture 658:21	628:2 652:23	postdoctoral	preferable 741:3	591:14,21,25
piece 616:1 624:18	657:23 664:4	593:11 671:18	preparation 628:23	598:19 602:9
648:8 652:15	666:7 670:7 684:4	posted 697:12	643:5	603:8,20 606:3
737:12 764:9	712:5 754:21	post-award 595:18	prepared 602:2	622:4 630:6
pieces 640:21	755:22 761:21	post-candidacy	622:20 627:7	634:13 637:20
642:13 651:1	762:16,16 792:12	687:20	652:19 680:13	656:25 658:23
pilot 658:11	802:20	post-docs 786:14	preparing 783:1,2	671:10,11,16,19
PIR 792:2,9,17	pointing 628:10	786:19 789:18	presence 596:7	671:22 672:22
PIs 687:16 715:7	652:15	791:13 795:8	present 601:6	674:21 678:24
place 641:19 649:1	points 612:23	798:5,14,15,16,18	625:7,10 641:1	686:12 689:22
649:4 730:5	636:15 757:13	post-hearing 686:2	642:19 647:22	710:2 711:4
752:15 754:9	policy 597:2 627:19	686:5	658:7 677:22	727:16 743:24
763:22 769:15,23	628:9,16,19	post-observation	711:1	Princeton 593:11
781:22	691:15 692:18	789:8	presentation 648:2	593:19
placed 661:9	693:2	potential 661:18	665:25 676:4,9	Prince's 694:14
680:12,18 740:11	politely 611:18	666:15	presentations	727:2
placement 693:20	poor 631:16 633:4	potentially 652:3	622:12 651:13,14	principal 639:17
places 655:21	711:12 735:12	674:18 700:19	651:19	714:15 724:19
754:8 768:15	poorly 631:19,25	730:6	presenting 667:15	principle 731:15
plan 622:13 642:1	740:11,13 757:25	power 792:7,8,18	presumably 709:3	principles 614:4,6
708:9	pop 775:24	practical 604:8	pretty 753:3	623:16 772:3
planned 791:10	popular 770:8	718:11	773:19 775:1	printout 719:7
planning 756:8	772:21	practice 604:8	802:19	749:11 765:2
plans 604:18	portfolio 783:8,8	622:11,16 650:21	prevent 611:19	767:12 770:19
644:12	783:23 784:7	651:25 652:5	previous 622:21	774:5,9 778:5,9
play 595:18 626:1	portfolios 783:10	676:24 684:3	691:23 716:14	779:2 780:19
639:24 658:21	783:18	700:15 704:5	previously 592:22	prior 741:7 745:25

748:6	producing 640:14 648:20 649:8	programming 761:12	647:4,4,9 658:16 658:18 668:21	719:16 736:14,15 736:16,19,22,23
probably 620:24 649:4 681:12 740:18 777:14	productive 644:23 658:13 680:1 751:21	programs 594:2,25 595:24 596:5 597:7,10,12,14,16 598:1,2,4,7,8,8,25 599:16,19,21 600:11 602:25 627:8,12 630:18 630:19 648:17 659:7,9,12,14 660:7,17 661:11 662:18 663:7,9,14 669:9 670:12 675:13 679:2 686:22 687:1,4,11 736:14 739:12,14 739:15,17 757:23 757:24 761:19 774:23 781:14 785:19,21 786:1,1 786:11,17 787:9 788:6,17 794:23 795:7 797:3 799:5	669:1 670:7,10,17 724:23,25 728:20 728:22	publications 675:24 715:24 719:11 720:1,2,24
probation 680:13 680:13,16 740:12	professional 595:3 642:24 643:2,11 645:11 646:7 647:23 653:6 711:3	proper 676:16	proposals 645:14 645:23,23 646:21 646:23,24 647:19 654:16 721:8 726:16,24 728:24	publish 644:21 678:17 736:12 737:1
probationary 680:21	professor 592:8,20 592:21 599:20 661:22 704:15 755:17	properly 650:6 708:17 712:8	propose 680:22	published 648:12 648:18 655:14 676:23 716:13,17 716:19,23 717:2 717:17 718:1 720:3
problem 614:8 618:10 621:23 623:19 655:22 656:15	professors 742:1	proportion 615:10 617:3 718:20 727:18	PROSKAUER 589:4	publishing 655:9
problematic 636:17	program 592:23 593:5 594:15 596:15,17 597:17 597:18,20,21,23 598:13 599:4,10 599:11,15,24 600:13,15,17,19 600:23 601:5 602:6 608:8 627:11 631:24,25 640:10 643:11 659:10 660:18,19 660:23 661:1,4,4 662:17,21 663:1 664:13,14 666:3 666:14 667:14 670:16 674:6 679:9,9 680:14,21 680:23 686:22 687:2 731:21 740:13,23 741:10 753:14 755:14 756:1 759:2 762:21,22 763:3,5 763:8,10 774:22 777:22 779:3,4,5 779:6,8,14 780:12 780:21,22 781:2 784:19 789:11,14 795:20 797:14 798:4,7,22,24 799:7,17	proposal 640:15 642:6 644:13,15	protocol 655:21 656:9,18 676:19	pure 708:14 751:3
problems 621:15 622:3 656:17			protocols 655:14 655:15 656:13	purely 629:4
procedural 591:3			prove 644:23	punch 672:3,4
procedures 722:4			provide 594:8 608:10 612:12 616:19 617:16 625:12 628:25 630:20 653:2 654:23 655:5 674:5,11 684:1,8 700:1,14 707:5 710:15 743:17 776:4 793:8	purchase 653:14 738:9
proceed 591:2,5 686:9 689:13 785:15			provided 612:20 660:24 674:21 688:1 732:20 737:13	purpose 700:10,14 700:17 746:11,20 747:5 763:20 776:4 788:2,9 791:21 795:19,23 796:2
proceeding 787:16 787:16			provides 608:13 637:5 707:23 786:23	purposes 609:15 615:25 776:3
proceedings 630:3 671:7 685:10 733:10 785:13 805:3			providing 732:13 793:13	pursuant 588:10
process 594:5,8 596:4 597:2,15 612:9 617:18 621:6 630:12 643:5 646:4 648:6 648:10,25 649:8 655:20 656:15,20 659:1,4,18 660:11 660:20 661:9 666:10 667:16 670:6,12 682:16 683:17 700:9 718:2 730:3,23 751:2 752:25 753:16 769:15 772:1 777:15			provost 748:13,19 757:21	pursue 669:6 739:4
produce 596:6 672:13 680:6			PSD 600:17	pursuing 673:6 736:10 738:24 741:13
produced 656:11			psychology 767:3	put 645:9 661:5 676:4 776:24,25 777:5,22 781:5 784:7 790:5
produces 679:5			public 599:13 601:4 675:25	putting 642:5
			publication 642:16 648:5 653:1 715:20,22 716:21 717:21 718:10,16	P-R-I-N-C-E 591:22
				p.m 804:4
				Q
				qualify 637:10
				qualities 614:20
				quality 703:2,4

710:21,25 711:12 720:24 787:24 792:21 793:8,13 800:19 quarter 608:5,14 632:7 634:25 637:4 668:4 670:11 675:1 680:17 688:14 696:3 734:1,3 769:19 771:19 783:9 792:1,12 803:4 quarterly 596:6,17 quarter-long 604:7 674:23 question 597:8,9 598:9 599:17 606:10 610:11 612:17 613:23 614:11 618:7,8,21 628:8 631:15 644:22 646:14,17 646:17 647:3 649:17 667:23 688:11 689:20,22 691:25 692:5,8 699:20,22 701:16 703:6 704:18 705:3,4,8,11,16 705:19,22 706:3 707:14,18,19 708:24 709:5 712:22 713:22 714:4 725:6,14 734:12 741:17 751:13,24 777:10 782:23 788:15 789:23 791:1 794:4,5,6,8 800:9 800:17 questioning 698:3 698:19 763:1 questions 612:11 612:12,13,15,20 613:3,16,20,25 618:5 619:3 620:4	620:21 621:1 623:7 624:6 644:1 644:7 647:2,6,7 700:23 701:19 706:2,4,13 713:10 713:11,12 733:13 733:15 741:19 742:24 743:1,21 763:23,24 764:9 766:18 785:5,16 793:17 801:10 803:14,16,17 quick 677:1 713:21 quickly 623:3 670:13 685:15 753:18 quiet 624:10 quite 596:20 623:2 646:7 653:14 662:22 752:7 770:5,6 777:16 793:6 quote 679:23,24	rare 680:5 740:18 rarely 626:25 631:22 667:5 rate 655:16 656:23 657:10 803:7 Raton 589:5 reach 630:13,15 642:15 663:2 747:23,23 reached 618:24 read 598:25 603:11 633:13 660:21 794:7,9 800:10 reader 593:2 628:3 637:1 646:13,18 ready 637:22 685:5 782:25 784:3 regents 639:10 653:14 654:14 672:17,19 676:23 738:7 real 675:9 753:17 775:8 776:3 realize 643:20 660:22 really 619:17 633:4 644:10 645:3 655:5 676:9 683:15 709:13 748:21 750:17 754:9 760:2 764:12 773:14 777:12 781:2,20 781:23 784:23 796:1 reappointed 788:25 reason 654:21 659:13 661:10 681:6,22 683:1 684:5 703:22 704:10,20 705:6 775:22 793:21 reasons 645:6 661:24 662:3 666:23 681:7 682:4 775:9	777:14 recall 689:17 694:2 694:5 724:7,10 735:14,16,23 740:21 741:1 recalls 689:9 receive 682:3 688:19 695:20 700:8 710:21 711:16,18 731:22 775:3 received 600:8 607:5 636:8 637:18 702:18 703:3 711:7 717:11 719:2 720:21 733:3 750:5 757:11,25 765:19 768:2 771:13 774:19 778:19 780:9 782:14 805:11 receives 636:23 711:14,17 receiving 690:7 730:13 recognize 598:19 606:19 634:14 644:5 778:4 recollect 690:2,5,13 recollection 699:18 recommend 608:2 608:5 610:4 619:20 628:13 recommended 602:23 679:6 record 591:1,20 593:2 598:25 602:9,16 603:12 603:15 606:3 614:12 628:3 629:25 630:4 631:23 632:19 637:2 653:25 671:4,8 685:7,12 685:15,22 686:1 698:2,16 702:3	705:24 713:25 732:21 733:5,7,11 735:12 744:1,4,20 785:8,10,14 794:9 800:10 804:3 805:7 recorded 712:8 recording 805:10 records 637:7 RECROSS 590:2 RECROSS-EXA... 743:5 recruit 598:7 663:11 779:9,14 Recruited 593:6 recruiting 597:13 recruitment 594:4 595:9 redirect 590:2 733:14 REDIRECT-EX... 741:21 reduced 668:6 reevaluating 644:24 reevaluation 644:18 refer 598:13 639:16 679:18 687:9 688:3 693:17 734:22 739:8 reference 794:2 referred 686:14 750:13 referring 686:25 695:10 702:12 724:15 789:24 790:8 refers 692:15 refine 763:11 reflect 642:2 705:24 reflected 686:6 reflection 751:2 755:21 regard 620:9
--	--	---	---	--

R

R 589:1
raise 621:15 701:18
raised 706:7
ran 759:17
Rando 590:5 744:9
744:14,21,23
745:16 749:5
750:8 757:13
763:1 765:21
774:22 778:23
780:11 782:16
784:11 785:4,19
787:5 789:25
791:7 794:14
800:15 801:5
803:20
range 614:19 643:7
653:7 676:1
695:23 701:3
ranked 659:9
rapidly 623:8
677:21

715:10 737:3	reminds 731:18	628:21 629:7,21	669:1,9,12,14	respectfully 611:18
regarding 612:1	removed 632:6	632:14 633:15,19	670:1 672:15,25	respond 677:1
644:8	renewable 654:15	633:23 634:3	673:7,13,15,25	responding 620:2
regards 706:6	repeat 633:18	638:5 687:22	674:8,13,20,24	response 610:14
regeneration 599:7	704:18 706:10	688:6 696:21	678:17,23 680:1	705:25 708:1
599:23 670:15	707:19 709:4	731:12,18,20	680:15 682:7,9,14	responses 613:17
736:21	repeating 655:12	732:6,10,16	682:15,22 683:19	responsibilities
Region 588:2 805:4	657:6 706:2,10	735:24,25 736:15	683:23 684:12	593:23 595:14
Regional 685:18	rephrase 599:17	736:17 797:21	687:5,6,7,9 714:9	596:1 762:15
register 712:6	706:4 725:6	requirements	714:10,13,20,24	responsibility
registered 608:9	800:17	602:6,18,20	715:5,16,16,18	596:8 702:6,23
regular 606:2	report 651:24	603:24 604:1	717:20,24 718:3	762:13
611:3 641:6	756:19 757:14,16	607:16 627:16,24	721:22,25 722:5	responsible 594:1
651:20 676:16	758:3 788:22	628:6 629:3,13,19	722:11,22 723:1,4	594:14 596:2,11
679:1	reported 588:24	637:11 638:15,18	723:12,14 724:4	724:20
regularly 594:18	633:8	686:19,23 695:13	724:23 726:25	responsive 677:2,3
608:23 640:8	represent 594:24	731:14,24 734:7,7	729:4,6 730:8	705:10,15
676:22	representation	736:4 740:3,6	731:2 736:8,12	rest 611:8 672:16
rehearsed 705:19	602:10 714:23	775:2	738:19,20 741:15	749:17 752:24
reiterated 679:15	request 685:16	requires 601:18	742:18 747:18	result 678:9 757:22
reiterative 646:4	requested 626:13	618:9 664:14	751:19,23	757:23 791:23
rejected 805:12	634:23 794:10	670:8,17 732:8	researcher 646:15	results 623:19
related 597:2,23	800:11	736:19,21 737:11	649:23 655:17,18	789:6
619:10 632:13	requests 677:1	requiring 604:1	657:15 715:14	resume 804:1,6
642:5 644:21	681:1	research 594:14	730:25	retention 595:8
657:7 669:8	require 629:20	598:15 625:7,10	researchers 656:2	retirement 662:2
676:15 677:10	638:21 644:17	627:10 628:13	673:21	retreat 652:3
702:18 715:16	646:24 650:20	630:22 637:24	researches 678:20	retreats 663:15
717:24	677:22 718:10	638:3,5,9,11,15	researching 677:17	return 612:19
relates 770:23	785:23 786:6	638:18,20,20,25	resistance 792:7,8	613:11
793:23	798:21 799:9,12	639:1,4,17,19,22	792:18	reverse 615:11
relations 588:1	799:15	639:23 640:1,9	resolve 616:12	review 635:3,18
617:5 805:3	required 605:8	641:2,5,7,14	684:10	636:1,11 645:12
relative 613:5	638:3 674:23	643:17 644:2,9,15	resolved 683:16	647:9 685:24
relatively 651:25	687:18 690:8,16	644:16,22,22,25	Resolving 731:1	732:13 750:22
relevance 726:22	692:17,18,25	645:12,15 647:4	resources 617:11	783:23,23 784:2
746:12 786:21,22	693:3 711:22	649:21,23 650:13	630:25 641:3	reviewing 602:9
relevant 604:16	722:4 730:11	651:8,24 652:2,20	653:18 654:15,17	re-redirect 743:22
630:21 687:6	732:3,5 736:7,12	652:24,25 654:4,6	654:22 687:12,18	rhetoric 745:21
787:25 788:8	736:24 737:5	654:6,11,13,18	respect 606:10	right 602:1 631:2
794:5 797:12	773:10 785:22,25	655:11 656:22,25	615:14 625:13	645:10 646:21
relies 647:23	796:15 797:15,20	657:3,9,18,21	639:24 641:17	650:4 691:17
rely 613:25 672:13	797:25 799:4	658:2,19,22 660:2	649:11,17 651:4	694:15 700:17
remain 684:25	requirement	661:16 663:7,13	651:18 697:24	743:23 745:5
731:13	601:15,17,22,24	663:15,17,24	701:10 709:20	753:10 754:8
remember 643:22	602:24 605:7	664:2,20 667:16	721:8 742:11	755:18 766:1
775:12 779:21	606:13,24 626:23	668:13,20,23	790:18 791:4	768:8,13 772:13

780:2 785:6 795:1 799:7 804:2 road 589:4 644:15 658:18,20 776:5 robust 752:7 Rohrschneider 720:7,11 role 595:18 599:22 608:20 621:21 626:2 632:19 639:23 640:2 641:2,7 649:6 653:17 658:23 660:13 668:20 672:8,9 673:12,14 673:22,24 674:3 674:11 677:8,14 705:13,15,15 762:20 802:22 roles 643:9 room 650:16 760:18 Rosalind 630:25 ROSE 589:4 rotate 664:5,8 665:2 682:19 731:5 rotating 657:24 664:11 rotation 663:19 664:1,4 667:6 682:22 683:20 738:14,15 rotations 661:16 662:25 663:4 664:12,14,15 665:10,23,24 666:11 667:3,23 668:2,6 731:4 rubric 756:6 rubrics 756:7 ruled 689:19 run 594:11,15 596:16,17 620:12 622:11 665:12,14 668:24 675:10,11 699:1 733:18,20	759:10 781:13 794:25 802:9 running 597:14 608:21,22 696:21 699:8 729:25 769:25 781:11 runs 800:25 802:5 rural 595:10 R-A-N-D-O 744:21 <hr/> S S 589:1 590:7 safety 737:11,15 738:2 743:7,9 sake 646:13 Salaries 729:2 salary 654:22 698:13 726:18,21 727:2,3,6,12,13 SALVATORE 589:7 744:7,22 746:15 747:1 750:1,6,7 757:7 757:12 765:15,20 767:23 768:3 771:9,14 774:15 774:20 778:15,21 780:5,10 782:10 782:15 785:4 786:20 787:12 788:3 789:22 790:4,20 793:15 794:11 796:16 798:24 800:8,12 800:22 803:17,23 sample 689:5 783:5 783:6 satisfactory 631:17 656:21 679:24 680:3 satisfied 731:24 satisfy 604:21 605:6 607:15 save 634:9 saw 613:10 saying 625:2 699:16,20 700:10	721:11 799:11 says 631:3 661:21 686:21 688:23,24 692:2,21,23 695:12 750:10 775:14,18 776:5 789:1 798:14 scale 772:16 scan 701:16 scary 796:6 scenario 708:10 schedule 626:22 scheduled 620:20 schematics 616:21 scheme 612:25 scholar 751:18 scholarly 648:21 750:10,24 751:1,7 751:11,16,21,22 scholarship 750:20 school 606:5 632:15 662:10 690:18 746:5 schools 605:10 science 597:17 619:9 645:11 654:4 687:8 792:9 sciences 594:3 597:18,20 599:3 599:14 601:4 602:3,7,12 603:13 603:22 625:24 643:7 659:7 686:19 688:2 696:7,8,12,17 746:5 762:12 766:23 790:15,17 790:18 791:4 792:19 science-related 651:11 scientific 594:13 643:25 646:8,14 648:7 651:10 654:6 674:24 759:8 scientist 599:10	651:8 653:6 scientists 597:19 638:10 640:1 641:14 645:11 646:7 650:7 651:5 651:18 715:9 scope 787:13,22 793:16 800:23,24 score 693:20 scores 614:22 scratch 625:3 seat 591:12 744:12 second 634:1 661:7 670:18 718:15 719:22,23 720:9 754:6 763:17 769:20 777:13 778:7 798:4,13,25 secondary 718:5 section 602:11 699:7,9 703:7 704:22 707:6,24 709:8,9,10,19,22 723:7,10 724:22 726:17 758:4 770:5 771:21,22 sections 696:22 699:4,5,24 700:11 700:21 703:16,24 704:11 707:23 733:19,21,22 secure 645:14 736:7 see 621:23 626:24 631:25 634:4 636:13,17,24 662:10 692:21 734:3 751:21 757:20 761:12 770:4 776:7 796:9 797:11 seeing 613:17 617:13 seeking 658:2 seeks 649:1 seen 749:8 756:15 764:22 765:4	767:10 770:16 774:2 778:24 780:16 796:1 select 659:8,9,13 662:24 663:18 682:13 714:8,9 selected 631:13 648:3 658:1,5 659:20 669:7 selecting 668:12,13 739:6 selection 647:25 661:19 682:16 selects 666:25 667:14 Self-Evaluation 635:9 self-topics 616:14 seminar 625:7 seminars 748:1 762:21 767:5 768:22 783:10 senior 596:25 604:14 621:22 627:7 652:4 663:20 665:9,15 672:25 673:2 675:3,7,8,15 682:1,8 683:7 687:20 718:18 720:14 742:4 789:4 seniors 672:23 sense 746:9 764:16 773:8 775:8 793:1 sentence 692:15 sentences 753:18 separate 597:23 674:4 696:8 798:17 separately 675:22 September 691:19 sequence 693:17,18 693:18,23 sequencing 653:17 series 636:18 646:25 647:5
---	---	---	---	---

663:8,10 766:20 768:24 769:4 770:1,1 seriously 633:16 serve 693:7 695:1,3 695:6 698:21 702:7,23,25 761:5 761:7 762:1 served 693:16 695:4 serves 698:22 722:24 760:25 service 697:15 799:17 serving 738:13 session 616:5 652:2 676:12 697:3 706:16 707:3,5 709:1,2 734:4 801:17,19 sessions 608:21 609:19 610:5 611:17 616:7 621:3 624:14 660:1 665:14 696:23 708:18 763:25 764:1 792:1,2 801:21 set 617:13,16 656:10 663:9 670:22 692:18 722:4 738:18 sets 602:5,24 656:12 693:3 setting 624:16 640:20,25 651:9 652:6 704:1,24 706:8 settings 625:18 659:25 660:2 676:12 settled 686:4 seven 632:23 several-day-long 659:17 shape 784:24 share 597:16	645:19 676:25 shared 667:17 669:8 680:18 shares 666:3 679:7 sharing 747:24 shoot 779:21 short 608:10 629:22 641:24 675:20 758:14 shorter 670:21 shorthand 646:9 650:3 651:12 show 609:2 614:21 622:13 623:10 650:16 652:16 660:1 701:11 749:5 756:14 757:20 764:21 767:9 770:15 773:25 778:2,22 780:15 showing 650:23 741:14 sic 607:25 sides 731:10 significant 597:1 604:2 621:23 647:2 654:16 672:18 683:16 794:2 significantly 629:19 683:13 silico 639:3 similar 621:2 623:14 624:3,14 625:9 646:23 647:20 648:18 651:22 712:16 713:5,6,10 715:5 788:8 simple 753:3 simply 747:19 751:3 755:20 775:14 783:4 single 612:15 661:3 701:15 729:4 803:3,8	sit 613:1 616:6 619:24 622:18 650:16 656:8 665:16 733:22 734:2 site 604:2 sitting 776:25 situation 611:3 656:7 681:10 683:11 708:3 781:23 six 641:12 675:21 sixth 655:8 six-month 670:19 size 773:3 skill 644:5 645:17 649:14 653:5,7 753:8 755:3 764:14 793:6 skills 604:9,12 633:18 640:24 641:8 645:15,20 649:22 651:6 700:16 704:5 706:24 710:12 721:2 747:5 754:7 754:19 765:24 768:6,7,10,19 769:11,22 781:13 793:11 slept 633:8 slide 624:19 slides 622:12,14 623:8 624:17 652:10 slight 764:13 slowly 617:18 small 609:2 610:10 615:20,22 617:25 620:9 623:17 644:6 650:9 673:13 676:1,2,9 681:14 687:17 690:21 706:16 727:18 755:1 766:21 769:9 smaller 675:11	676:22 703:25 704:24 706:8 771:21 772:25 social 660:2 766:23 790:15,17,18 791:4 792:9,19 society 654:7 sole 700:10 solely 615:1 623:17 solicit 621:22 solidify 658:15 solutions 610:23 672:19 somebody 611:22 617:23 659:1 682:18 775:15 777:1 somewhat 696:7 718:17 740:20 sorry 706:11 739:14 742:6 770:25 796:19 800:8 sort 740:22 741:8 758:21 762:15 772:3 775:10 781:20 sounds 634:20 648:14 source 686:24 723:17 768:19,20 sources 688:9 721:18 South 588:11 589:12 spawning 672:13 speak 611:14,16 623:3 624:17 636:21 777:6 speakers 769:7 speaking 624:11 756:13 special 616:17 685:17 738:21 specialty 791:20 specific 605:5 608:13 610:6	645:7,21 646:1 647:1 652:8 660:18 669:18 725:14 728:22 737:11 738:3,3 749:2 specifically 596:12 707:10 747:14 754:19 787:10,14 788:18 790:8 specimen 650:19 speculate 709:14 spell 591:19 744:19 spend 624:16 638:24 654:16 677:17 spending 678:9,13 678:15 spends 678:5 spent 738:15 sporting 595:3 spot 613:9 701:12 spring 675:1 758:16,17,19 768:23 773:5 781:4 staff 595:8,17 630:18 654:23 734:21 735:5 737:8 749:17 762:3,5 768:16 769:12,24 783:22 784:2 789:5 802:8 802:9 Stafford 719:24 stage 642:4 669:19 682:11 683:12,14 753:16 755:4,5,15 784:20 stages 642:11 647:18 656:13 753:17 760:12 stance 751:21 stand 625:8 759:12 792:5 standard 700:22,25 701:2 718:18
--	---	--	--	--

standing 680:24 685:1 697:23 698:7,12 731:13 731:17 760:18	steps 738:21 step-by-step 655:21 STEVE 589:6,7 stipend 632:9,13,14 632:25 678:4 684:7,20 687:13 689:25 724:11,13 738:14 794:22	632:9,24 633:3,10 633:12,14 634:18 634:21 636:3,23 637:13 638:2 639:18,22 640:9 640:12,20 641:1,4 641:7 642:7,18,23 645:9 648:1,13,23 649:2,5,21 650:1 651:7,24 652:9 657:22,24 658:1,7 658:8,19 659:19 660:20,22 661:2 661:20 662:4,5,19 662:24 663:2 664:13,17,25 665:25 666:5,9,10 666:15,17,19,21 666:25 667:8,9,11 667:15 668:12,16 668:18,21 669:2,5 669:15,21 670:2 670:24 673:10 674:6,17,17 675:3 675:9 678:8,14,20 679:8,10,17,21 680:9,11,12,20,22 681:2,7,20,23,24 682:1,5,8,11,18 682:22,24 683:1,4 683:5,7,8,21,24 684:2,6,7,25 691:5 698:22 699:9 700:4 703:3 703:4 704:5 706:17,19,21 708:22 709:16 710:11 711:6,9 712:10,13,14,25 713:1 714:24 716:14,16 717:5 717:22 718:5 719:21,24,25 721:5 722:24 723:1 728:8 731:6 731:8,13,16 736:2 736:7 737:2	738:13,24 739:4 740:1,11 741:12 742:23 746:23 753:14 754:1 755:17 763:22 775:16 783:25 784:19 795:16,16	students 588:6 593:6,7 594:2,4,7 594:13,17,19,24 595:1,4,7,9,11 597:13,21 600:10 600:14,18 601:6 601:10,18 603:22 603:24 604:8,14 604:15 605:9,11 605:18,22,24 606:7,11,14 607:9 607:24 608:2,5,21 609:2 610:11,16 610:18 611:16 612:8,21 613:14 613:17,22,25 614:3,6,19,24 616:3,12,15,23 617:1,15,19 618:9 618:13,18 619:12 619:15 620:2,20 621:3,4,5,13,21 622:19 623:7,9,15 623:21,24 624:1,7 625:19 626:9,13 626:16,23 627:3,7 627:15,20,23 628:4,11,20,22 630:7,13,15,16 631:7 632:23 633:5,6 634:22 636:14,18 637:24 638:9,11,13,14,19 638:21,24 639:1 639:24 641:13,23 642:4 643:4,13,14 644:10 645:7,19 646:5 647:12,19 647:21 648:4,8 649:11,12,24	650:6,16 651:4,10 651:17 652:4,5,7 652:18 653:21 654:12 655:7,19 657:12,16 658:24 659:4,6,18,25 660:1,4,15 661:11 661:15 662:1,9 663:6,11,16,20,24 664:15 665:6,8,9 665:13,15,17 666:22,23 668:3,5 669:7,10,19,23 670:9,14,16 671:15 673:5,6,15 673:16 674:1,12 674:20,22 675:21 675:21 676:2,14 676:20 677:1,6,17 678:2,12,23,25 679:3,12,25 680:5 681:11 683:14 684:4 686:25 687:10,21,24 688:5,12,14,18 689:16 690:6,15 690:20,23 691:7 691:14,15 692:4 692:13 693:7 694:1,25 695:8,13 695:20 696:11,15 696:19 697:15 699:24 700:12,13 700:15 701:11,18 702:1 703:8,19,23 706:9 708:17 710:9 711:1,2,5 711:23 712:2,15 713:16,16 714:7,9 714:22 715:4,8,15 715:19,21 719:15 720:5,16,23 721:3 724:12 727:1 729:8,17 730:11 730:20 731:3,18 731:22 732:13,15 734:8,9,19 735:4
stands 792:9 staple 774:24 Star 663:9 staring 624:17 start 608:1 628:17 719:19 748:23 755:19,21 763:3 783:14 784:9 796:1 started 758:25 759:2 760:7 764:2 792:16 796:7 starter 777:3,6 starting 754:13 781:3 784:21,22 784:23,25 796:6 starts 685:14 state 591:19 653:24 744:19 stated 633:6 646:14 692:10 statement 646:3 659:22 660:22 750:9 783:6,23 statements 722:19 STATES 588:1 stay 649:13 682:5 734:5 staying 682:9 stays 707:4,22 stem 599:7,23 608:13 670:15 675:24 736:21 759:18 760:3,3 762:13 766:22 795:11 step 612:17 656:12 656:15 755:16 758:21 763:4 765:21,22 768:4 770:10,23 782:16 784:5 Stephanie 720:12	strategies 699:4 stray 708:19 709:23 strayed 708:8 Street 588:12 strictly 787:23 strike 696:20 705:10 strokes 670:23 strong 615:10 645:15 655:6 687:7 736:13 794:16 stronger 678:17 strongly 662:9 structural 669:3 772:3 structure 597:24 748:11 structured 770:6 772:8 struggling 616:10 618:19 619:18 student 594:9 600:22 604:21 606:4,6 607:14,18 607:22 608:17,23 610:13 611:5,19 614:15,17 615:3,4 618:21 619:3,6,17 619:20 621:19 624:19 625:16 626:25 627:13 629:6,12 631:2,12	632:9,24 633:3,10 633:12,14 634:18 634:21 636:3,23 637:13 638:2 639:18,22 640:9 640:12,20 641:1,4 641:7 642:7,18,23 645:9 648:1,13,23 649:2,5,21 650:1 651:7,24 652:9 657:22,24 658:1,7 658:8,19 659:19 660:20,22 661:2 661:20 662:4,5,19 662:24 663:2 664:13,17,25 665:25 666:5,9,10 666:15,17,19,21 666:25 667:8,9,11 667:15 668:12,16 668:18,21 669:2,5 669:15,21 670:2 670:24 673:10 674:6,17,17 675:3 675:9 678:8,14,20 679:8,10,17,21 680:9,11,12,20,22 681:2,7,20,23,24 682:1,5,8,11,18 682:22,24 683:1,4 683:5,7,8,21,24 684:2,6,7,25 691:5 698:22 699:9 700:4 703:3 703:4 704:5 706:17,19,21 708:22 709:16 710:11 711:6,9 712:10,13,14,25 713:1 714:24 716:14,16 717:5 717:22 718:5 719:21,24,25 721:5 722:24 723:1 728:8 731:6 731:8,13,16 736:2 736:7 737:2	738:13,24 739:4 740:1,11 741:12 742:23 746:23 753:14 754:1 755:17 763:22 775:16 783:25 784:19 795:16,16	students 588:6 593:6,7 594:2,4,7 594:13,17,19,24 595:1,4,7,9,11 597:13,21 600:10 600:14,18 601:6 601:10,18 603:22 603:24 604:8,14 604:15 605:9,11 605:18,22,24 606:7,11,14 607:9 607:24 608:2,5,21 609:2 610:11,16 610:18 611:16 612:8,21 613:14 613:17,22,25 614:3,6,19,24 616:3,12,15,23 617:1,15,19 618:9 618:13,18 619:12 619:15 620:2,20 621:3,4,5,13,21 622:19 623:7,9,15 623:21,24 624:1,7 625:19 626:9,13 626:16,23 627:3,7 627:15,20,23 628:4,11,20,22 630:7,13,15,16 631:7 632:23 633:5,6 634:22 636:14,18 637:24 638:9,11,13,14,19 638:21,24 639:1 639:24 641:13,23 642:4 643:4,13,14 644:10 645:7,19 646:5 647:12,19 647:21 648:4,8 649:11,12,24	650:6,16 651:4,10 651:17 652:4,5,7 652:18 653:21 654:12 655:7,19 657:12,16 658:24 659:4,6,18,25 660:1,4,15 661:11 661:15 662:1,9 663:6,11,16,20,24 664:15 665:6,8,9 665:13,15,17 666:22,23 668:3,5 669:7,10,19,23 670:9,14,16 671:15 673:5,6,15 673:16 674:1,12 674:20,22 675:21 675:21 676:2,14 676:20 677:1,6,17 678:2,12,23,25 679:3,12,25 680:5 681:11 683:14 684:4 686:25 687:10,21,24 688:5,12,14,18 689:16 690:6,15 690:20,23 691:7 691:14,15 692:4 692:13 693:7 694:1,25 695:8,13 695:20 696:11,15 696:19 697:15 699:24 700:12,13 700:15 701:11,18 702:1 703:8,19,23 706:9 708:17 710:9 711:1,2,5 711:23 712:2,15 713:16,16 714:7,9 714:22 715:4,8,15 715:19,21 719:15 720:5,16,23 721:3 724:12 727:1 729:8,17 730:11 730:20 731:3,18 731:22 732:13,15 734:8,9,19 735:4

735:7,18 736:10 737:1,8,18 739:10 741:9 742:3,4,10 742:18,21 746:8 747:23 751:8,12 751:15 752:23 753:6,23 754:14 754:20 755:7,23 758:9,15,16,16,18 760:9 761:1,6,7,8 761:9,10,19 762:1 763:21 766:16 767:1 769:18 771:25 772:12,15 772:22 773:5,11 773:13 777:6 779:10,15,16 781:5,14,19 784:13 785:1,21 785:24,25 786:6 786:11,19,24 787:11,14 788:1,9 788:11,14,19 789:7,12,13 791:14,18 794:18 794:24 795:1,3,5 795:8,13 796:4,15 797:12,16,20,25 798:5,11,14,19,22 799:4,12,16,20,23 799:25 800:4 802:1 805:5 student's 627:9 642:9,20 653:4 664:24 678:4,21 682:21 776:12 studies 627:14 671:12 675:16 741:13 study 638:3 649:4 650:9 669:2 718:5 718:7 727:20 studying 798:12 stuff 752:19 style 609:16 661:17 662:8 664:23 665:1,5 731:11	styles 641:22 subfield 718:17,18 subject 645:8 686:22 708:5 715:16 716:20 745:20 750:21 subjects 704:24 submission 642:13 736:15 submit 647:19 783:7 submits 635:16 submitted 648:18 submitting 647:24 subpoena 689:3 subpoenaed 689:3 689:5 subsequent 622:24 666:11 subsequently 676:5 subset 628:22 659:16 660:8,15 687:10,17 substantial 637:12 762:1 substantially 740:24 substitute 603:25 substituted 601:20 603:5 subtle 611:14 sub-question 612:24 success 645:16 successful 611:7 670:3 682:16 suddenly 755:11 sufficient 648:4 706:24 suggest 612:14 618:4 656:17 suggested 612:12 645:25 647:21 683:18 suggesting 649:3 suggestions 613:20 679:19	suitable 622:14 630:21 Suite 588:12 589:5 sum 763:9 summer 668:5 756:8,14,19 759:7 759:9,18,19,20,22 759:24 789:10 795:11 sunsetted 597:15 sunsetting 598:2,3 supervised 720:13 supervision 595:21 supplies 729:2 support 594:9 595:15 632:14 646:3 654:20,23 670:1 672:9 673:12,14 674:12 684:3,4,20 687:13 687:14,14,15,20 690:1 728:8 748:22 supported 595:12 623:16 669:19 682:23 supporting 729:16 supports 672:16 suppose 714:17 sure 613:12 617:9 618:15,23 619:12 636:23 638:17 695:25 698:6 733:6 783:12 785:9 796:16 798:3 surpassed 740:2 switching 660:25 sworn 591:9,16 744:10,16 system 650:10 668:4 671:14 systems 599:8 600:2 605:17	TA 594:15,16 601:21 604:2 605:19 606:13 607:13,21 608:7 608:19,20,23 609:1,21 612:3,7 613:2,11 614:21 615:19,20 616:7 618:19 619:4,21 620:3,5,6,11,20 622:11,20 625:16 626:22 627:13,20 627:25 628:5,8,12 628:14,20 629:2,8 629:10,13,14,18 629:20 630:14,16 631:3,8,11,14,15 631:18,23 632:6 632:10,13,16,17 632:18,19 633:10 633:15,16,18,25 634:1,21,23 635:10,13,14 636:12,12,19,22 637:4,10,11 690:8 691:2,6 692:1,13 694:9,12 695:1,3 695:4,12,15 696:12,16,19 698:21,22 699:3,4 701:17 706:16,23 707:3,6,22,24 708:4,8,22 709:3 709:7,10,17,22 711:14,17,18 712:3,11,13 731:14,17 733:23 734:6,7 735:11,22 736:4 740:3 754:21 755:11 take 600:21 606:12 607:20,24 608:6 608:18 614:21 618:21 620:1 623:5 629:22 633:16 634:22 641:19 643:14	644:25 654:11 657:16 662:1,3 666:23 667:11 674:23 685:5 705:18 732:3,8 743:9,12,14 756:23 768:24 769:18 773:7,8,13 774:1 778:3,23 784:23 785:22 786:1 793:4 797:16 798:16 799:5 taken 605:8 612:22 630:1 633:15 671:5 685:9 686:18 733:8 738:22 785:11 takes 607:14 675:8 708:22,22 741:24 771:25 talk 601:13 603:3 609:8 612:6 618:10 625:9 630:6 640:5 641:15 643:1 645:25 648:1 652:5,11,12,18 654:24 663:12 665:16 671:25 673:5 677:4 679:17 681:5,7 683:19 687:25 741:4 742:16 747:20 755:13 758:10 759:4 760:20 763:12 764:11 770:2 771:15 783:20 789:1 talked 652:13 663:20,21 690:15 691:2 715:19 729:11 730:16 731:12 790:2 802:14 talking 609:22
T				
T 590:7				

645:4 681:14	TA-ships 605:10	686:23 687:19	team 649:25 650:1	725:8
694:14,15 705:5	605:22 630:24	690:18 695:14	655:4 676:4	terminated 672:6
739:2 755:19	631:1 690:16	699:10 700:4	715:17 721:6	terms 618:2 664:19
talks 605:4 652:1	692:2,9 730:12	706:20 710:7,7,16	730:22,24 731:2	668:5,15 687:12
663:8,10 710:6	TC 779:4,5,6	710:16 712:17,25	742:23	752:2
tangential 738:19	799:10	732:12 742:3	tech 673:11,12	test 612:11,22
TAs 596:11 601:11	teach 604:9 605:2	745:10 746:4,6,10	786:12	613:9 642:2
601:12 608:1,1	612:8 614:7,10	746:20,21,22,23	technical 654:19,23	testable 644:6,11
609:9,10,12,23,25	615:13 616:11	746:24 747:2,3,4	672:9	testified 591:16
610:21 611:6,17	617:7 618:2,12	747:5,9,13,16,18	technician 672:15	615:14,18 620:9
612:8,10,12,19,25	620:22 621:8,24	747:22,25 748:7	technicians 671:21	625:19 634:4
613:2,15,20 614:7	622:8,25 624:12	748:22 750:10,16	671:25 743:8,11	699:3,13 707:9
614:10 615:13,16	625:17,20 628:8	750:23 751:6,11	technique 617:22	711:21 726:23
615:22 616:4,16	628:17 655:24	751:16,19,22	techniques 644:20	733:17,19 734:6
617:7,17,22 619:5	656:6 690:8 700:5	752:23 753:1,4,5	650:22 718:7	734:14 735:6,10
619:11,14,19	703:8 708:16	753:9,15,20 754:2	755:1	738:17 739:25
620:22 621:8,13	713:3 741:25	754:3,7,18 755:25	tell 593:2,22 597:6	740:10 744:16
621:16,24 622:1,5	750:18 755:6,9	756:18 757:15	602:4 612:7	785:20 790:12
628:10,16 629:12	758:18,22 760:16	758:11,12,24	617:24 619:2,4	793:16,18
632:1 665:15	761:10 766:15	759:9,18 760:8,11	622:8 623:12,19	testify 688:22
692:16,18,25	770:11,23 773:4	760:19 761:21	626:22 630:12	708:16 801:2
693:3,7,14,16	773:15 791:18	763:4,6,10,18	637:1 640:4,6	testifying 793:21
694:2,4,11,19,22	793:12 794:23	765:2,22,24 766:3	641:20 650:5	testimony 689:12
694:23 695:6,7	796:5	766:22,23,24	651:16 653:12	706:18 789:16
696:22 697:3,5,6	teacher 612:4	767:2 768:7,18	659:3 661:20	790:22 793:24
697:16,19 698:21	686:19 695:12	769:2,3,6,20	695:23 718:3	testing 614:5
699:9,23 700:20	754:1 763:22	770:3,12,21,24,25	752:4 774:21	Thank 591:23
703:8,15 704:15	teachers 589:16	771:16 773:22	775:23 777:2	602:13 639:12
704:16,20 706:8	626:9 735:1	774:7,21 775:12	778:4 779:5	654:8 668:10
707:10 733:18	760:17 766:10	776:6,18,21,24	780:22	671:1 685:20
763:16 764:6,11	784:20 794:17	777:9,15,18,23	telling 618:22	686:8 688:16
taught 616:25	teaches 625:21	779:3,11,12,19,25	707:10	698:18 707:1
625:23 626:19	629:6 746:25	783:7,8,10,15,18	tells 616:15	714:3 743:25
675:19 693:13,22	747:6 751:15	783:23 784:12,20	templates 728:15	744:7 750:6
694:3,8,12,21,22	teaching 596:12	786:23 787:24	ten 690:22	759:15 767:15
695:1 697:2 701:5	601:14,14,19	789:2 791:12,17	tend 614:13 623:3	785:4,6 803:22,23
701:8 713:17	602:6,23 603:24	791:18,19 792:14	623:22 687:6	thesis 628:14
746:21	603:25 604:2,9,12	792:21,24,24	769:18	640:17 642:7
TA's 631:16 632:3	604:16,18 605:1	793:2,11 795:11	tendency 625:1	643:6 648:19,21
635:22	605:12 606:25	795:18,22 796:1,6	tends 611:5	648:21,25 649:9
TA-ing 637:6	608:3,11,12 609:5	796:7,14,17,18	tenure 625:23	670:17 672:25
695:12,20	610:22 620:25	797:15,19 798:11	788:23 789:2,18	673:3 674:2,3,7
TA-ship 605:19	624:2 625:13	798:11 799:6,13	ten-week 668:4	674:10,15 678:25
606:2,8 691:10,16	626:15,17,20,25	799:16,19 800:4,5	term 642:24 654:5	679:4,13,20
696:13 697:17	627:5 628:24,24	800:7,19,25,25	668:2,3 673:20	680:14 682:2
735:14 736:5	630:8 633:18	801:14 802:3,18	687:1 698:13	795:25
740:2,7,8	634:18 635:8	802:21,24 803:8	722:22 723:3	thing 661:8 685:14

698:10 702:12	788:7,21 790:4,21	714:7 716:17,19	715:18 717:25	653:3 655:6
727:9 750:19	792:10 794:3	719:15 736:12	738:25 761:23	657:19 669:20
758:1 759:25	798:9,9 803:13	738:15 745:12	768:18 770:3	674:21 675:2,3
760:6 764:3,4	thinking 643:18	748:14,16 752:6	777:6	676:12,13 677:10
769:14 773:18	662:6 760:10	754:10,13 762:18	topics 604:16 654:7	687:15 711:10
775:18 776:22	777:12	763:13,14,19	658:5,7,24 659:12	718:6 721:3 728:7
783:21 789:19	thinks 686:3	766:10,16 772:9	674:18 676:1,7,8	729:11,17,21,24
790:1 796:19,22	third 627:14 650:2	772:23 775:17	676:15,22 677:10	729:25 730:1,5,7
things 618:12	670:11 719:25	776:24 777:17	699:14,25 703:17	730:8,11,13,15
625:4 643:22	764:3,3 766:9	780:3 797:4	703:21 704:2	732:7,11,14,16
645:4 665:9,17	769:20 788:24	801:18 802:12	706:11 769:5,8,8	735:21 736:5
707:13 708:16	789:15	times 655:13 712:9	total 690:23,24	737:5,9,11,12,15
723:10 739:2	thought 621:6	754:21 758:19	697:17	738:2,3,4 743:7,9
740:22 741:9	622:23 685:3	772:18 773:5	track 594:7 625:23	743:12,14,16
747:15 750:14	three 610:10 636:2	775:24,25 802:12	666:4 678:1,3	764:13 781:10,11
752:17 753:24	647:2 659:8,13	timing 662:25	679:10,21 683:9	781:13 786:23
755:2 756:5	662:11 664:11,15	title 592:7 639:14	734:22 776:2	787:3 788:1 790:8
757:18 758:7	671:17 687:1,23	745:6	788:23 789:2,18	801:3 802:11
759:6 760:23	687:23 694:4	titled 635:8	tracking 594:1	trains 641:1,13
762:24,24 763:19	699:2 701:7 745:3	titles 745:6	595:23 679:1	transcript 776:12
766:16,17 768:17	746:7 748:5 752:1	today 667:17	tracks 731:21	776:15 805:9
769:12 770:9	754:18 755:4	685:25 697:24	traditional 639:9	transfer 684:6
771:22 772:12	758:19 759:19	742:5 783:4	747:4	transferable
773:1 775:5,17,23	768:4 773:4	today's 755:24	train 612:4 615:21	645:17 653:7
777:21,22 780:25	783:16 784:15	782:24	638:9 644:10	transition 753:25
781:9 784:24	790:5	told 602:19 604:20	649:11 650:5	755:10 763:21
785:21,23 796:10	three-quarter	613:19 626:8	651:3,17 663:12	transplantation
796:11 797:7	762:18	673:24 684:17	720:23 779:9,14	650:19
think 610:12	thriving 598:8	748:21	trained 593:6	treat 629:12,13
611:22 614:3	Thursday 701:8	tomorrow 761:14	639:25 650:6	treated 676:21
616:18 618:9,20	tics 625:3	804:1	676:18 781:10	troubleshoot
626:11 642:23	tied 669:18	tools 617:17 650:15	795:4 800:2	657:12 730:20
644:21 645:18	tiers 628:8	top 660:19 661:5	trainees 732:8	troubleshooting
655:19 656:10	time 591:4 592:12	719:22,24	trainer 599:24	641:8 655:20,25
683:9 702:11	600:24 601:6	topic 614:4 617:6	training 593:5	730:23 731:1
703:5 705:21	602:25 618:20,21	619:5,9,22 623:16	594:12,12,15,16	742:16,17,21
738:8,10 741:16	619:18 620:19	626:14 644:9	595:16,19 596:18	true 615:11 650:24
748:7 749:2	623:10 624:17	650:2 651:22	597:1,3,20,22	655:17 728:3
750:12 751:19,20	628:12 634:2,9	652:12 658:3,14	598:5 599:10,22	730:10,14 751:14
751:20 754:9	638:25 641:16	664:20 670:5,19	601:21 603:5,23	765:7 767:16
755:5 760:21	642:9,21,23	670:22 675:23	604:5,22 607:13	778:8 786:5 805:8
761:11,18 766:14	644:17 654:11,16	676:3,10 677:5	607:25 625:11	truth 755:22
770:7 772:6	656:19 658:22	706:14,14,25	626:10 632:19	try 609:25 623:4,9
773:19 777:24	668:2,6,15 672:3	707:4,7,11,22,25	633:17 640:13,20	656:14 665:19
779:21,24 781:3	672:5 679:6	708:19,20,22,23	640:24 642:10	708:11 709:17
782:1,16 783:11	683:13 686:2	709:1,8,11,11,19	643:19 644:2	755:19 763:2
784:22,23,25	690:24,25 698:5	709:23 710:13	650:3 651:10	791:14

trying 683:11 712:2 753:13 767:6 773:6,17,18 784:18 793:1	types 692:17 733:17 787:9	711:13 739:17,22 795:20 796:2	592:19 593:10,11 593:12,16 594:20 595:13 605:25 626:5 627:6 637:25 659:2 667:12 668:17 682:3 690:17 696:6 722:5,10 723:14 725:11 726:1,3,6 729:6,9 735:3 736:8,11 737:16,23 743:8 744:8,25 745:2,7 745:12,19,24,25 746:1,2 747:4,6 748:11 749:24 751:12,25 753:22 757:4 759:10,20 760:1 761:11 765:12 767:21 771:7 774:13 776:20 778:13 782:8 784:16 786:15,23,25 787:25 793:7,9,12 794:3 805:5	683:17 694:8,12 694:19,23 697:2 697:25 698:12 721:3 723:24 725:10 737:6,10 738:1 747:10 756:6,6,7 775:17 799:16
Tuesday 588:12 701:6,8	typical 613:22 626:22 663:10 746:19 792:25	undergraduates 604:24 605:2 672:21 673:17 693:19 694:6 695:5 697:10 699:17,21 700:2,7 700:11 701:23 702:7,17 703:1,25 704:10,12,21,23 707:6,24 709:10 709:20 711:15 713:2 739:11,16 764:10,11 793:9 793:14 795:21,23 796:9	626:5 627:6 637:25 659:2 667:12 668:17 682:3 690:17 696:6 722:5,10 723:14 725:11 726:1,3,6 729:6,9 735:3 736:8,11 737:16,23 743:8 744:8,25 745:2,7 745:12,19,24,25 746:1,2 747:4,6 748:11 749:24 751:12,25 753:22 757:4 759:10,20 760:1 761:11 765:12 767:21 771:7 774:13 776:20 778:13 782:8 784:16 786:15,23,25 787:25 793:7,9,12 794:3 805:5	uses 603:6 604:7 useful 598:5 625:6 626:15 653:7 732:13 758:8 764:12 770:8 773:19 775:24 784:19
tuition 684:22 724:14	typically 598:13 600:21 608:4,20 613:1 620:1 622:17 625:5 639:16 655:15 656:8,17,23 659:19 662:18 667:24 668:19 670:23 674:24 679:6,14 680:17 687:22 696:24 697:9,12 698:25 699:1 704:2 712:12 723:18 729:22 734:2 738:12,23 741:11 747:8	underlying 614:5 underrepresented 595:11 understand 604:20 613:1,7 616:3 617:15,20 706:1 750:8 765:23 800:14	626:5 627:6 637:25 659:2 667:12 668:17 682:3 690:17 696:6 722:5,10 723:14 725:11 726:1,3,6 729:6,9 735:3 736:8,11 737:16,23 743:8 744:8,25 745:2,7 745:12,19,24,25 746:1,2 747:4,6 748:11 749:24 751:12,25 753:22 757:4 759:10,20 760:1 761:11 765:12 767:21 771:7 774:13 776:20 778:13 782:8 784:16 786:15,23,25 787:25 793:7,9,12 794:3 805:5	used 603:6 604:7 usually 647:1 675:16 680:8 682:17 738:8 779:16 793:25
turn 691:24 695:11 793:5	<hr/> U <hr/> UChicago 606:23	understanding 614:2,5 710:8 748:25 764:15	626:5 627:6 637:25 659:2 667:12 668:17 682:3 690:17 696:6 722:5,10 723:14 725:11 726:1,3,6 729:6,9 735:3 736:8,11 737:16,23 743:8 744:8,25 745:2,7 745:12,19,24,25 746:1,2 747:4,6 748:11 749:24 751:12,25 753:22 757:4 759:10,20 760:1 761:11 765:12 767:21 771:7 774:13 776:20 778:13 782:8 784:16 786:15,23,25 787:25 793:7,9,12 794:3 805:5	<hr/> V <hr/> vacancy 671:23 vague 691:11 694:13 713:7 716:2 value 709:15 715:10,10 variable 615:8 variation 774:25 varies 608:8 624:8 626:24 663:1 695:22 726:14 variety 604:15 659:25 682:4 762:15 various 594:9 609:8 653:19 661:24 vary 668:18 680:7 740:18,24 vast 695:7 venue 651:23 venues 638:17 version 650:3 651:12 765:6 770:1 777:8 versus 614:25
turned 760:17	ultimate 677:8	understands 677:8	626:5 627:6 637:25 659:2 667:12 668:17 682:3 690:17 696:6 722:5,10 723:14 725:11 726:1,3,6 729:6,9 735:3 736:8,11 737:16,23 743:8 744:8,25 745:2,7 745:12,19,24,25 746:1,2 747:4,6 748:11 749:24 751:12,25 753:22 757:4 759:10,20 760:1 761:11 765:12 767:21 771:7 774:13 776:20 778:13 782:8 784:16 786:15,23,25 787:25 793:7,9,12 794:3 805:5	uses 603:6 604:7 useful 598:5 625:6 626:15 653:7 732:13 758:8 764:12 770:8 773:19 775:24 784:19
tweaking 767:6	ultimately 640:1 648:12 659:2 666:18 667:8 753:13	understood 652:22 654:10	626:5 627:6 637:25 659:2 667:12 668:17 682:3 690:17 696:6 722:5,10 723:14 725:11 726:1,3,6 729:6,9 735:3 736:8,11 737:16,23 743:8 744:8,25 745:2,7 745:12,19,24,25 746:1,2 747:4,6 748:11 749:24 751:12,25 753:22 757:4 759:10,20 760:1 761:11 765:12 767:21 771:7 774:13 776:20 778:13 782:8 784:16 786:15,23,25 787:25 793:7,9,12 794:3 805:5	used 603:6 604:7 usually 647:1 675:16 680:8 682:17 738:8 779:16 793:25
twice 695:12 734:2 802:13	um 625:2	unendowed 688:4	626:5 627:6 637:25 659:2 667:12 668:17 682:3 690:17 696:6 722:5,10 723:14 725:11 726:1,3,6 729:6,9 735:3 736:8,11 737:16,23 743:8 744:8,25 745:2,7 745:12,19,24,25 746:1,2 747:4,6 748:11 749:24 751:12,25 753:22 757:4 759:10,20 760:1 761:11 765:12 767:21 771:7 774:13 776:20 778:13 782:8 784:16 786:15,23,25 787:25 793:7,9,12 794:3 805:5	used 603:6 604:7 usually 647:1 675:16 680:8 682:17 738:8 779:16 793:25
two 595:17 597:14 597:15,25 598:2,4 601:19 602:18 603:6 604:22 605:7,22 606:1 608:24 622:6,9 623:25 625:13 640:18 647:1 664:14 672:23 674:10 675:13 686:21 687:23 690:16 697:9 700:23 701:8 718:22 720:8 728:7,7 729:3 731:4 739:2,21 740:2 748:17,18 753:18,23 759:6 762:6,10 763:15 764:10,18 765:21 765:22 769:17 771:19 775:8 788:20 789:4,14 790:5 791:9 792:1 794:19 801:20 802:13,13	umbrella 739:9,18 Um-hum 767:19 unable 680:20 unaware 625:5 uncertain 613:18 undergrad 703:19 undergrads 702:24 undergraduate 605:1 606:7,14 610:17 621:13,21 625:20,21,22 673:21 692:13 699:6,11,23 700:13,18 701:18 706:17,21 709:3 710:6,9,13,20	unfair 615:9 unfilled 695:15 unhappy 683:6 uniform 613:10 736:16 Union 686:3 Union's 685:16 787:23 788:4 unit 626:24,24 United 588:1,6 805:5 universities 759:20 774:24 university 588:3 591:7 592:3,4,12	626:5 627:6 637:25 659:2 667:12 668:17 682:3 690:17 696:6 722:5,10 723:14 725:11 726:1,3,6 729:6,9 735:3 736:8,11 737:16,23 743:8 744:8,25 745:2,7 745:12,19,24,25 746:1,2 747:4,6 748:11 749:24 751:12,25 753:22 757:4 759:10,20 760:1 761:11 765:12 767:21 771:7 774:13 776:20 778:13 782:8 784:16 786:15,23,25 787:25 793:7,9,12 794:3 805:5	used 603:6 604:7 usually 647:1 675:16 680:8 682:17 738:8 779:16 793:25
two-course 633:23 687:22 735:24	unaware 625:5	university 588:3 591:7 592:3,4,12	626:5 627:6 637:25 659:2 667:12 668:17 682:3 690:17 696:6 722:5,10 723:14 725:11 726:1,3,6 729:6,9 735:3 736:8,11 737:16,23 743:8 744:8,25 745:2,7 745:12,19,24,25 746:1,2 747:4,6 748:11 749:24 751:12,25 753:22 757:4 759:10,20 760:1 761:11 765:12 767:21 771:7 774:13 776:20 778:13 782:8 784:16 786:15,23,25 787:25 793:7,9,12 794:3 805:5	used 603:6 604:7 usually 647:1 675:16 680:8 682:17 738:8 779:16 793:25
two-day 795:18 802:3	uncertain 613:18		626:5 627:6 637:25 659:2 667:12 668:17 682:3 690:17 696:6 722:5,10 723:14 725:11 726:1,3,6 729:6,9 735:3 736:8,11 737:16,23 743:8 744:8,25 745:2,7 745:12,19,24,25 746:1,2 747:4,6 748:11 749:24 751:12,25 753:22 757:4 759:10,20 760:1 761:11 765:12 767:21 771:7 774:13 776:20 778:13 782:8 784:16 786:15,23,25 787:25 793:7,9,12 794:3 805:5	used 603:6 604:7 usually 647:1 675:16 680:8 682:17 738:8 779:16 793:25
two-quarter 693:18	undergrad 703:19		626:5 627:6 637:25 659:2 667:12 668:17 682:3 690:17 696:6 722:5,10 723:14 725:11 726:1,3,6 729:6,9 735:3 736:8,11 737:16,23 743:8 744:8,25 745:2,7 745:12,19,24,25 746:1,2 747:4,6 748:11 749:24 751:12,25 753:22 757:4 759:10,20 760:1 761:11 765:12 767:21 771:7 774:13 776:20 778:13 782:8 784:16 786:15,23,25 787:25 793:7,9,12 794:3 805:5	used 603:6 604:7 usually 647:1 675:16 680:8 682:17 738:8 779:16 793:25
type 622:15	undergrads 702:24		626:5 627:6 637:25 659:2 667:12 668:17 682:3 690:17 696:6 722:5,10 723:14 725:11 726:1,3,6 729:6,9 735:3 736:8,11 737:16,23 743:8 744:8,25 745:2,7 745:12,19,24,25 746:1,2 747:4,6 748:11 749:24 751:12,25 753:22 757:4 759:10,20 760:1 761:11 765:12 767:21 771:7 774:13 776:20 778:13 782:8 784:16 786:15,23,25 787:25 793:7,9,12 794:3 805:5	used 603:6 604:7 usually 647:1 675:16 680:8 682:17 738:8 779:16 793:25

615:4 751:19
vertebra 671:13
viable 758:8
vibrant 760:2
Victoria 590:3
 591:8,14,21
videod 604:10
view 619:7 636:17
 643:4 761:22
 762:16 784:15
views 705:20
Virginia 598:15
virtually 727:8
virtue 618:15
visional 598:23
visit 660:4 703:19
visiting 660:4
 664:10
VOIR 590:2
voluntary 629:4
volunteer 773:13
volunteering
 629:14
V-I-C-T-O-R-I-A
 591:22

W

wages 729:2
wait 772:24,24
 773:3,7 792:7
walk 612:25
want 609:8 622:1
 631:7 641:14
 652:15 655:24
 657:20,25 661:21
 662:1 681:8 685:4
 698:6 701:22
 702:1 703:8
 738:10 757:13
 760:23 762:7
 769:14 772:12
 773:8 777:7
 779:11,12
wanted 661:9 669:2
 748:21 760:7
wanting 681:20
 702:4

wants 667:9 681:7
 698:2 787:17,17
warn 616:16
warrant 736:3
Washington
 589:17
water 625:4
way 609:24 637:13
 644:21 653:9
 698:4 705:7
 738:10 748:16
 762:1 772:9
 775:13 776:11
 783:3
ways 609:8 616:18
 617:14 641:12
 658:4 704:6,7
 747:17 750:13
weak 615:12
web 686:13,14,15
 722:16 728:12
 765:5 780:19,20
website 596:3
 598:24,24 606:24
 630:24 697:13
 719:7 722:10
 732:20 749:12
 765:3 767:14,15
 770:20 771:2
 774:6,9 778:6,9
 779:2 782:2
websites 596:5
web-based 617:11
Wednesday 701:6
 804:6
week 651:21 673:1
 697:17 700:22
 701:1,4 759:17
weekly 641:23,25
 651:21 696:24
 697:7,20
weeks 668:7 766:12
 766:13
weight 689:12
WEITZMAN
 589:6 591:7,24
 600:4,9 602:13,17

604:4 607:1,6
 629:22 630:5
 634:6,8 636:4,9
 637:14,19 639:13
 654:9 668:11
 671:1,9 685:2
 688:21 689:1,6,17
 690:9 691:11
 692:5,20 694:13
 697:22 698:5,14
 698:17 700:23
 702:10,14 704:14
 705:2,7 707:8,14
 708:12,21 709:24
 712:18 713:6
 714:16 716:1
 717:9 718:25
 720:19 721:10
 725:12 726:22
 727:2,7 732:25
 739:12 741:3,18
 741:22 742:24
 743:22
well-being 621:18
went 592:20 622:23
 633:19 732:21
 797:7
wet 639:6,8
wet-lab 639:2
we'll 640:5 654:24
 681:6 685:25
 803:25
we're 596:4 637:20
 644:24 655:13
 657:6 668:4
 681:14 702:11
 706:2,12 707:17
 752:25 757:23,24
 758:18 759:23
 760:22,22 767:4,6
 773:4,6 777:20
 781:18 782:16
 784:18,21,23
 785:3 787:12
 792:17 793:1
 797:9,10 801:20
we've 598:6 605:21

652:13 655:15
 661:11 719:13
 720:5 758:17
 767:1 788:5
 801:16
whatsoever 604:23
White-something
 721:25
wide 643:7
widen 750:17
William 590:5
 744:9,14,21
willing 676:24
wind 658:25
winds 659:3 666:18
wing 599:11
winter 758:19
 768:23 773:5
wish 591:3 605:11
 624:19 626:16
 631:14 642:2
 663:3 666:20
 669:6
wishes 666:1
 729:20
withdraw 597:8
witness 591:2,6,9
 591:10,15 602:15
 603:21 639:7
 654:1 668:1 685:3
 688:13,22 689:23
 690:12 704:17
 705:8,18,24
 706:22 709:16
 710:3 714:1 716:5
 721:15 725:17
 727:17 733:15
 743:1,25 744:6,10
 744:11,15,19
 746:18 759:13,16
 785:6,16 787:6
 788:5 791:8 792:6
 793:17,18 794:15
 796:18,20 800:16
 801:6 803:22
witnesses 590:2
 794:1

word 631:1 692:21
 697:25 704:15
 738:9 773:1
words 606:12 751:4
 752:10
work 610:16
 613:11 638:21,22
 640:13 641:10,11
 643:6 644:21
 645:10 646:11
 648:9,12,19 649:1
 655:9 660:7
 661:21 663:3
 670:25 682:15
 697:19,25 701:12
 702:19,20 703:2
 705:7 716:20
 717:3 718:12,19
 718:21 724:20
 731:8 732:2 737:7
 737:19 743:8,11
 743:13 745:23
 750:23 751:1
 752:11,11,14,24
 752:25 762:19
 771:22 789:16,20
 790:12,16 791:3
 792:15,20
worked 593:21
 746:1
working 592:19
 609:1 611:15
 621:4 651:21
 656:4 662:12
 676:3 715:4
 743:12 745:1
 746:8,8 762:19
 784:9,14 789:17
 790:2 795:24
 800:21
works 659:4
 723:23 754:2,4
 770:8
workshop 608:3
 684:15 766:3
 768:24
workshops 608:10

608:13,15 768:17 768:19,23 769:1,3 769:7 775:2 781:12,13 783:10 783:17,18 794:25 795:2,3 world 637:21 652:19,21 675:9 782:18 worries 771:1 wouldn't 611:22 633:3 write 645:12 646:6 646:13 648:5 715:21 723:6 726:17 writes 648:24 684:10 726:24 write-up 679:5 writing 645:9 647:16,20 648:6 649:11,14 654:16 658:16 702:4 715:20 720:24 721:2 728:15 756:20 783:5,6 written 640:13,14 645:10,15,20 646:19 647:12,18 669:25 679:16,16 712:4 wrong 802:23 wrote 750:9 W-I-L-L-I-A-M 744:21	765:5,5 767:12 768:6,8,8 771:5 773:14,14 784:10 797:5 798:9 802:22 year 608:6,8,11,16 615:7,8 621:12 624:8,8 627:1,14 632:22 670:11,18 675:4,7 681:12 684:21 686:16 687:20 724:7,18 726:14,14 731:22 740:19 741:2 752:16 753:11 756:8 757:19,20 758:4,18,20,25 759:1,1 760:4,23 763:12 766:8,9 769:13 773:4 779:20 781:6,6 784:22,22 788:24 797:4,6,7,12,13 798:10 801:15,16 801:17,19,20 802:13 years 592:24 597:21,22 600:16 600:21,25 602:23 627:11 632:22,23 644:16 668:16,19 681:13 684:2 687:23 689:25 693:15 694:4,4 721:24 729:25 730:2 732:9 737:2 745:3 746:1,7 748:5,8 752:1,6 760:20 764:10 776:7 783:16 784:15 789:4 791:10 795:25 796:2 802:13,13 Yep 759:17 yesterday 697:23 698:11 yes-no 618:8	YOKICH 589:11 YVETTE 588:24 805:15 <hr/> Z <hr/> zebrafish 650:10 669:1,4 671:13 672:11 <hr/> \$ <hr/> \$30,500 684:21 <hr/> 0 <hr/> 084-003734 588:25 805:15 <hr/> 1 <hr/> 1st 745:3 100 646:18 12 728:18 754:14 13 588:2 805:4 13-RC-198325 588:5 805:6 15 602:11 686:17 746:1 748:8,9 752:6 781:8 16 590:19 597:12 716:7,10 717:8,11 781:8 17 590:20 717:12 717:15 718:24 719:2 724:7 170s 693:23 18 590:20 719:3,6 720:18,21 724:18 742:8 19 590:21 722:7,9 732:19,23 733:2 19th 589:12 1990 719:12 1997 592:6 <hr/> 2 <hr/> 20 590:21 693:15 701:9 722:13,15 724:16 732:19,23 733:2 780:2 2001 589:17	2003 593:1 2010 592:17 593:1 632:23 691:1 2012 717:17 2014 745:4 2015 716:13 2016 635:8 756:19 757:14,17 2017 588:13 804:7 805:7 202 589:18 21 590:22 728:9,11 732:19,23 733:3 219 588:11 22 758:15,15,16 773:3 2255 589:4 23 588:12 805:7 24 804:7 27 590:10 598:17 598:18,20 600:5,8 686:13 28 590:11 606:16 606:18,20 607:2,5 628:1 691:20,23 695:10 29 590:11 634:10 634:11,14 636:5,8 691:22 712:23 713:5 <hr/> 3 <hr/> 3 607:11 30 590:12 634:10 634:11 635:8 636:5,8 302-4760 589:8 31 590:12 634:10 634:11 635:20 636:5,8 713:23 312 589:14 32 590:13 634:10 634:12 637:2,3,15 637:18 691:22 33 590:13 600:16 600:20 749:4,6,10 749:18 750:5	33431-7360 589:5 34 590:14 756:12 756:15,17 757:7 757:11 35 590:14 764:20 764:22,25 765:4 765:15,19 36 590:15 767:8,10 767:23 768:2 796:25 37 590:15 770:14 770:16,18 771:10 771:13 372-1361 589:14 38 590:16 773:24 774:1,15,19 385 600:12 681:15 39 590:16 778:1,3 778:15,19 798:6 393-7472 589:18 <hr/> 4 <hr/> 40 590:17 758:17 773:3,5 778:20,23 778:24 780:6,9 41 590:17 780:14 780:16,16 781:25 782:10,14 421 589:5 <hr/> 5 <hr/> 5 691:24 693:18 694:1 695:6 5:04 803:25 804:4 50 701:7 555 589:17 561 589:8 591 590:3 598 590:10 <hr/> 6 <hr/> 6 628:7 695:11 60 632:23 694:7 726:12 801:24,25 600 590:10 632:24 606 590:11 60603 589:13 607 590:11
---	--	---	---	--

634 590:11,12,12
590:13
636 590:11,12,12
637 590:13
686 590:3

7

716 590:19
717 590:19,20
718 590:20,20
722 590:21,21
728 590:20,22
732 590:21,21,22
741 590:3
743 590:3
750 590:5
755 590:13
756 590:13
763 590:14
764 590:14
771 590:14
772 590:14
774 590:15
775 590:15
777 590:15
778 590:15
781 590:16
782 590:16
785 590:16
786 590:16,17
787 590:17
788 590:17
790 590:17
793 590:5

8

8 589:12 607:11
628:7 691:24
695:11
808 588:12

9

9:00 804:2,6
9:09 588:13
90 632:22