



Office of Data Analytics
UNIVERSITY OF COLORADO BOULDER

Report: 2018 AAUDE Doctoral Exit Survey

Action Items and Takeaways

Two issues stood out as potential action items:

- Only 60% of graduates agreed that they would feel comfortable seeking advice on careers outside of academia.
- Only 47% said their doctoral program provided a formal assessment of their academic progress at least annually (other than course grades and results of written or oral exams).

Overall, most graduate students were satisfied with their experience in graduate school. The following variables were particularly strongly related to one's overall satisfaction with their experience:

- Agreeing that students are treated with respect by faculty
- The quality of financial support
- Agreeing that the intellectual climate of my program is positive
- Having another mentor within one's department in addition to the primary academic advisor
- Receiving helpful advice from one's advisor on writing and revising the dissertation

Analysis Notes

- To examine demographic differences, each dependent variable was tested with the following predictors: Gender and Department (Arts & Science vs. Engineering). Other analyses were not feasible due to small N's (e.g., Gender x Department).
- Any significant differences due to gender and department are noted below in each section. If not mentioned, there were no significant differences.

Survey Sample & Administration

- Sample: Students who completed their PhD in Summer or Fall 2017, or Spring 2018.
- Administration: Survey opened on July 11, 2018 and closed on August 7th at 11:59 p.m. Four reminders were sent out at roughly weekly intervals: July 18, July 24, July 31, August 6.
- Two \$500 cash awards were randomly awarded to those who had submitted their response by the deadline.

	# Invited	
Total: 401 Recent PhDs	235	59%
230 men	126	55%
171 women	109	64%
71 international	34	48%
330 domestic	201	61%

234 A&S	143	61%
105 Engineering	45	57%
62 Other programs	30	52%

- The response rate was excellent (59%). Women were marginally more likely to respond than men; domestic students were significantly more likely to respond than international students; response rate did not significantly vary by academic program.

Satisfaction with Program Choice

We included one overall satisfaction question not requested by AAUDE: “Overall, how satisfied were you with being a graduate student at CU Boulder?” The majority of students were satisfied: 44% reported being very satisfied, 32% somewhat satisfied, 7% neutral, 10% somewhat dissatisfied, and 7% very dissatisfied. Satisfaction was strongly correlated with recommending CU to others considering ($r = .55$) and choosing CU again ($r = .54$), and to a lesser extent, choosing the same field again ($r = .30$).

<i>If you were to start your doctoral career again...</i>	Definitely not	Probably not	Maybe	Probably	Definitely
Would you choose same field of study?	1%	6%	12%	22%	60%
Would you choose same university?	4%	7%	21%	33%	35%
Would you recommend this university to someone considering your field?	6%	8%	17%	27%	43%

Evaluation of Specific Program Components

Overall, the majority of students rated each aspect of their graduate program positively—as either good, very good, or excellent.

The three highest rated aspects of graduate school were:

- 1) “Academic experience” (35% of students rated as *Excellent*)
- 2) “Academic advising and guidance” and “Overall experience at this university” (29% of students rated each as *Excellent*)
- 3) “Student life experience” and “The relationship between faculty and graduate students” (28% of students rated each as *Excellent*)

The three lowest rated aspects of graduate school were:

- 1) “Assistance in finding employment” (24% of students rated as *Poor*).
 - a. Graduates from Arts & Sciences (A&S) rated assistance in finding employment lower than graduates from the College of Engineering and Applied Science (CEAS). Whereas 50% of students in A&S evaluated assistance in finding employment as *Poor* or *Fair*, only 39% of those in CEAS did so.
- 2) “Academic advising and guidance” and “Opportunity to collaborate across disciplines” (13% of students rated each as *Poor*)
- 3) The relationship between faculty and graduate students (9% rated as *Poor*)

<i>Please rate the following aspects of your doctoral program:</i>	Poor	Fair	Good	Very Good	Excellent
Academic experience	5%	9%	16%	35%	35%
Academic advising and guidance	13%	18%	17%	23%	29%
Overall experience at this university	4%	10%	22%	35%	29%
The relationship between faculty and graduate students	9%	16%	20%	27%	28%
Student life experience	5%	13%	22%	32%	28%
Opportunity to collaborate across disciplines	13%	16%	27%	19%	25%
Graduate level teaching by faculty	4%	12%	22%	37%	25%
Overall program quality	4%	13%	18%	41%	24%
Prep for candidacy/comp exams	6%	15%	28%	28%	23%
Graduate curriculum	5%	17%	25%	35%	18%
Assistance in finding employment	24%	24%	23%	19%	10%

Note. Table is sorted from highest to lowest ratings of “Excellent.”

Training Orientation & Evaluation

- *Q: When you first enrolled as a doctoral student, did your program provide an orientation to explain the process of completing your doctoral degree?*
 - The majority of students said that their program offered an orientation and that they attended (75%). 10% said an orientation was not offered, and 12% said they did not remember.
- *Q: How effective was this orientation in helping you to understand the process of completing your doctoral degree?*
 - Of those who attended, 78% said that it was effective (48% said “Somewhat effective” and 30% said “Very effective”). 10% were neutral about the orientation, and 11% said the orientation was ineffective (9% said “Somewhat ineffective,” 2% said “Very ineffective”).
- *Q: Did your doctoral program provide you with a written set of expectations about academic requirements and expected progress?*
 - The majority of students, 86%, reported that their doctoral program provided them with a written set of expectations about academic requirements and expected progress.
- *Q: Other than course grades and results of written or oral examinations, did your doctoral program provide a formal assessment of your academic progress at least annually?*
 - **ACTION ITEM: Only 47% said their doctoral program provided a formal assessment of their academic progress at least annually (other than course grades and results of written or oral exams).**

Support

Students evaluated areas of support positively.

Adequacy of support provided during doctoral education and dissertation research:

	Poor	Fair	Good	Very good	Excellent	N/A
Library and electronic research resources	1%	5%	18%	27%	45%	5%
Information technology (IT) resources	2%	11%	21%	32%	29%	3%
Lab, clinical, studio or other physical facilities	5%	7%	15%	17%	27%	29%
Your personal work space (e.g., office)	12%	17%	23%	23%	24%	1%
Financial support	12%	17%	25%	24%	21%	1%

Note. Table is sorted from highest to lowest ratings of “Excellent.”

Faculty Mentoring & Advising

- *The most helpful advice was all tied to dissertation research:*
 - Selection of a dissertation topic
 - Advice regarding dissertation research
 - Writing and revising your dissertation
- *The least helpful advice was:*
 - Nonacademic career options
 - **Graduates from A&S, compared to CEAS, found nonacademic career option advice less helpful.**
 - Search for employment or training
 - Academic career options
- Ratings of timeliness aligned strongly with helpfulness (the correlation for each area was around .70), suggesting that a large part of whether advice is “helpful” is whether it is “timely.”

How helpful / timely was the advice you received from your advisor in each area?

	N/A – No advice	Helpful	Timely
		(Among those who received advice)	
Selection of a dissertation topic	4%	90%	92%
Your dissertation research	1%	89%	86%
Writing and revising your dissertation	3%	83%	79%
Academic career options	9%	81%	82%
Search for employment or training	10%	72%	78%
Nonacademic career options	21%	54%	72%

Note. Responses are sorted from most to least helpful.

Professional Development

- 80% of students agreed or strongly agreed that they would feel comfortable seeking advice from their advisor on career options within academia.
- **ACTION ITEM: Only 60% agreed that they would feel comfortable seeking advice on careers outside of academia, however.**
- 68% agreed that their advisor would support them in any career path they chose.
 - Compared to men, women were less likely to agree that their advisor would support them in any career. However, the difference was small and did not emerge for comfort seeking advice about career options within or outside of academia.

Other Mentors

- 62% of grad students said there was another faculty member they considered to be a mentor.
 - Having an additional mentor was more common among students in “Other” academic disciplines (e.g., Education, Journalism, Music: 84%), followed by A&S (61%), then CEAS (50%).
- Of those who said they had a mentor, 77% reported that this mentor was in their department.
- Of those who received advice in each area from their mentor, the vast majority found it to be helpful and timely.
- Indeed, ratings of advice from a mentor (in terms of both helpfulness and timeliness) were more positive than ratings of advice from the primary academic advisor.
- Numbers were insufficient to examine helpful and timely ratings for mentors by demographics.

<i>How helpful / timely was the advice you received from your mentor in each area?</i>	N/A – No advice	Helpful	Timely
		(Among those who received advice)	
Academic career options	51%	95%	96%
Writing and revising your dissertation	54%	95%	94%
Your dissertation research	48%	95%	96%
Selection of a dissertation topic	57%	94%	95%
Search for employment or training	55%	88%	94%
Nonacademic career options	61%	85%	91%

Note. Table is sorted from most to least helpful.

Climate

Four questions assessed the climate of one’s graduate program. Overall, climate ratings were quite positive, and notably, responses did not differ based on gender or program.

	Disagree	Neutral	Agree
Students in my program are collegial.	7%	10%	82%
The intellectual climate of my program is positive.	12%	14%	75%
Students in my program are treated with respect by faculty.	15%	22%	63%

The social climate of my program is positive.	16%	22%	62%
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Note. Table is sorted from highest to lowest ratings of “Excellent.”

Obstacles to Success

Rate the extent to which the following factors were an obstacle to your academic progress:

		(For those who did not respond NA)		
Other	58%	22%	6%	72%
Availability of faculty	1%	45%	47%	8%
Work/financial commitments	4%	48%	32%	19%
Program structure or requirements	1%	54%	37%	9%
Family obligations	9%	63%	28%	9%
Course scheduling	1%	72%	23%	5%
Immigration laws or regulations	39%	78%	14%	8%

Note. Table is sorted from highest to lowest obstacles (sum of percent saying “A minor obstacle” and “A major obstacle”).

- N=24 responded “Other,” and most rated this a “Major obstacle.”
 - Six responses referred to the cost of living and the lack of funding (e.g., “Cost of living in Boulder; Funding for TA and GPTI positions, though it improved, is still terrible next to peer institutions”).
 - Several mentioned advisor relationships (e.g., “Lack of formal advising,” “The graduate advisor,” “Availability of my research advisor,” and “Terrible advisor relationship”).
 - A couple mentioned negative climate (e.g., “Professor infighting and apathy to international and intercultural students” and “Rude faculty”).

Teaching and Research Assistantships

Summary: Most graduate students reported serving as both a teacher and a research assistant during graduate school. Only 14% reported that they did not teach. Students viewed Research Assistant (RA) experience as the most helpful to their professional development, followed by being a Graduate Part-Time Instructor (GPTI), and lastly, a Teaching Assistant (TA). Overall, each experience was viewed by most students as helpful to professional development. Furthermore, the training received for teaching was viewed as helpful by the majority of students, particularly training from the Graduate Teacher Program, relative to training from their particular graduate program. Engineering graduates were more likely to have RA experience and less likely to have teaching experience, relative to A&S graduates.

Teaching Experience

- 57% reported being a teaching assistant (TA) during their graduate students
- 24% reported being both a TA and a Graduate Part-Time Instructor (GPTI).

- 14% reported being neither a TA nor a GPTI.
- 5% reported being just a GPTI.
- 57.5% reported that they received training in teaching skills from their department.
 - Of these, the majority (52%) rated the training as “Somewhat helpful”
 - 38% rated the training as “Very helpful”
 - 13% rated the training as “Not very helpful”
 - 6% rated the training as “Not at all helpful”
- 47% reported that they received training in teaching skills from the Graduate Teacher Program.
 - Of these, the majority (57%) rated the training as “Somewhat helpful”
 - 26% rated the training as “Very helpful”
 - 14% rated the training as “Not very helpful”
 - 3% rated the training as “Not at all helpful”
- Graduate students viewed their TA experience as helpful to their professional development.
 - 44% said “Very helpful,” and 39% said “Somewhat helpful.” 11% said “Not very helpful” and 6% said “Not at all helpful.”
- Graduate students viewed their GPTI experience as even more helpful to their professional development.
 - 83% said “Very helpful,” 13% said “Somewhat helpful,” and only 4% said it was not helpful.

RA Experience

- 82% reported being a research assistant (RA) during their graduate studies.
- 70% rated this experience as “Very helpful” for their professional development, 24% said “Helpful,” and only 6% said “Not helpful.”

Academic Productivity

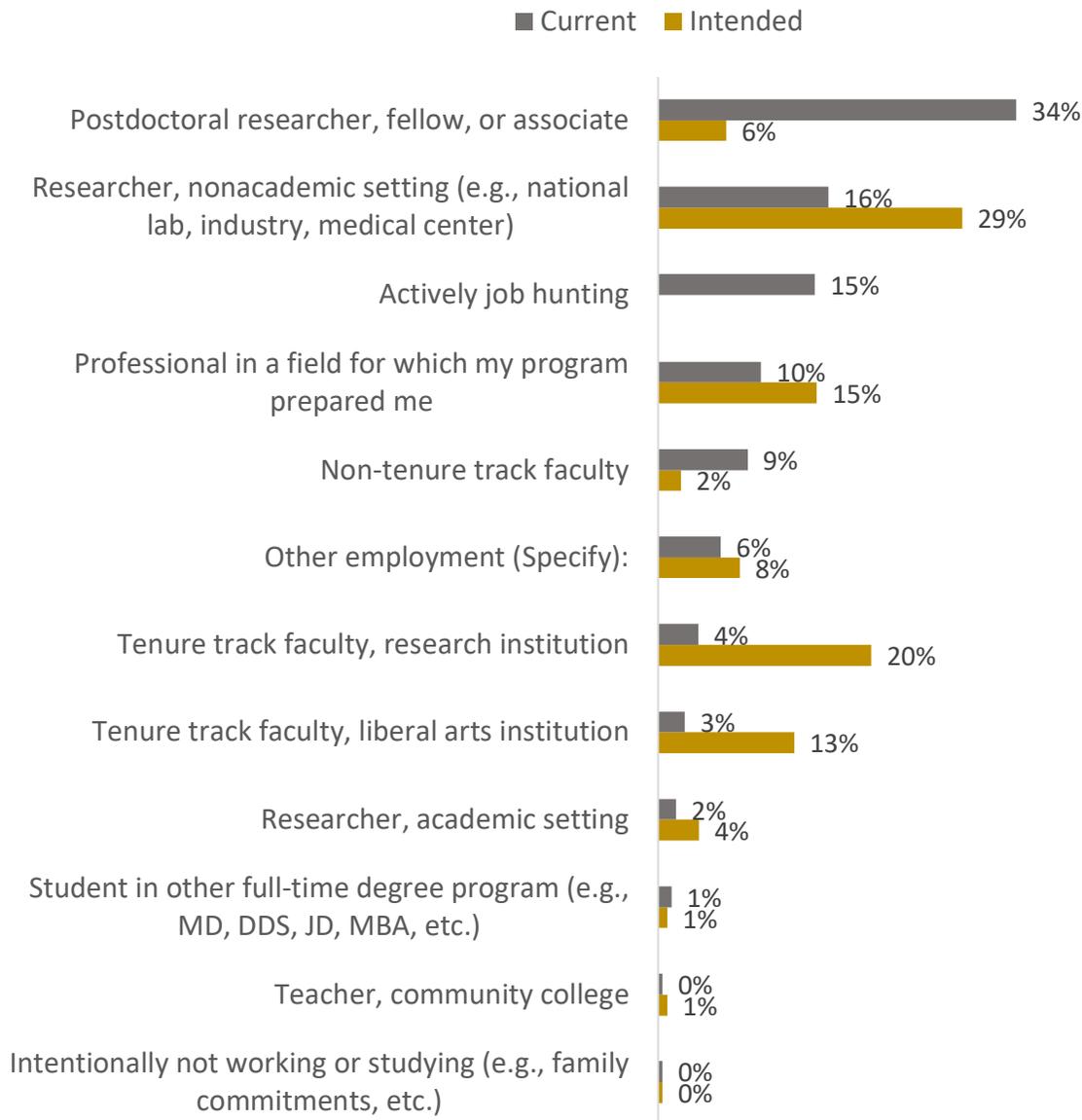
- *Q: How many research or scholarly presentations (including poster presentations) did you make on your campus during your graduate studies (not including presentations given in class or in regularly scheduled not-for-credit lab meetings)?*
 - The average number of research/scholarly presentations made on campus was 3.60 (sd = 2.88), with a minimum of 0 and a maximum of “10 or more.”
- *Q: How many research or scholarly presentations (including poster presentations) did you make at meetings away from your campus (regional, national or international)?*
 - The average number of research/scholarly presentations made off campus was 5.68 (sd = 3.12), with a minimum of 0 and a maximum of “10 or more.”
 - Women presented more off-campus than men.
 - To fund these presentations, 62% reported using “A research grant”, 57% reported using funding from their program, and 43% reported using “Other Institutional funds.”
- *Q: Based on research conducted while you were a graduate student, how many scholarly works that have been published or accepted for publication (e.g., peer reviewed articles, books, book chapters, conference proceedings) have you authored or co-authored?*
 - The average number of accepted/published scholarly works authored or co-authored was 3.70 (sd = 3.01), with a minimum of 0 and a maximum of 10 or more.
 - Engineering grads reported having more publications than Arts & Science grads.
- The average number of publications under review was 1.09 (sd = 1.06), with a minimum of 0 and a maximum of 5.

- Engineering grads reported having more publications under review than Arts & Science grads.

Current Employment and Postgraduate Plans

- The most common **current** employment status was postdoc (34%), followed by researcher in a nonacademic setting (16%) and actively job hunting (15%). 10% reported being professionals in a field for which their program prepared them.
 - 84% of grads say that their intended career path is directly related to their graduate training, 5% aren't sure and 10% say no.
- Asked what type of principal employer they will be working for (or training with) in the next year, the top selections were:
 - U.S. 4-year college or university other than medical school (33%)
 - Industry (for profit) (23%)
 - U.S. university-affiliated research institute (11%)
 - Foreign educational institution (6%)
 - U.S. medical school (including university-affiliated hospital or medical center) (4%)
- The most common **intended employment** was to be tenure-track faculty, either at a research institution (20%) or a liberal arts institution (13%). This was closely followed by wanting to be a researcher in a nonacademic setting (29%).
 - Notably, the proportion of graduate students already in tenure-track positions was small (4% at research institutions, 3% at liberal arts institutions).
 - However, 41% were already in a career that aligns with their intended career.

Employment Status



- 40% say they will live in Colorado, 9% in California, 8% outside of the U.S., 6 don't know, 3.5% in New York, 3% in Massachusetts and 3% in Washington.
- Most report that their starting annual salary is 55-80k (35%), followed by 40-55k (27%), 80-100k (14%), 100k or more (13%), 30-40k (5%), 20-30k (4%), and less than 20k (2%).

Predicting Overall Satisfaction with Graduate School

A series of regressions were conducted to examine which variables were most tied to overall satisfaction with one's program. Overall satisfaction was treated as the dependent variable, and was defined as the average of the following 8 variables (Cronbach's alpha = .92).

1. Overall, how satisfied were you with being a graduate student at CU Boulder? (Very dissatisfied – Very satisfied, 1-5 scale)

Please rate the following aspects of your doctoral program...

2. Overall program quality (Poor – Excellent, 1-5 scale)
3. Quality of academic experience
4. Quality of student life experience
5. Quality of overall experience at this university

If you were to start your doctoral career again... (Definitely not – Definitely, 1-5 scale)

6. Would you select CU Boulder?
7. Would you select the same field of study?
8. Would you recommend CU Boulder to someone considering your field of study?

Satisfaction & Climate

- Two climate items were related to satisfaction. More stars indicate a stronger relationship ($***p<.0001$, $**p<.001$, $*p<.01$):
 - Students in my program are treated with respect by faculty.***
 - The intellectual climate of my program is positive.***
- These two items did not relate to satisfaction after accounting for the above two items:
 - Students in my program are collegial.
 - The social climate of my program is positive.

Satisfaction & Quality Ratings

- The following aspects of one's graduate program were positively related to satisfaction, over and above the others:
 - Graduate curriculum***
 - Assistance finding employment*
 - Opportunity to collaborate across disciplines*
 - Graduate level teaching by faculty*
 - Relationship between faculty and grad students***
- Not related to overall satisfaction:
 - Prep for candidacy/comp exams
 - Academic advising and guidance

Satisfaction & Resources

- The following resources were positively related to satisfaction, over and above the others:
 - Financial support***
 - Personal work space (e.g., office)*
- Not related to overall satisfaction:
 - IT resources
 - Lab, clinical, studio or other physical facilities
 - Library and electronic research resources

Satisfaction & Mentorship

- The timeliness of advice didn't matter after accounting for the helpfulness of advice. This suggests that timeliness is a part of helpfulness, and we likely do not need to measure both dimensions in future surveys.
- Types of advice that matter for satisfaction were related to the dissertation:
 - Writing and revising dissertation*
 - Dissertation research*

- Types of advice that did not predict satisfaction:
 - Selecting dissertation topic
 - Academic career options
 - Nonacademic career options
 - Search for employment or training
- Having another mentor, particularly one within your department, was related to greater satisfaction.*
- After accounting for helpful advice from one's primary advisor, advice from one's mentor did not shape overall satisfaction.

Satisfaction & Academic Productivity

- Interestingly, satisfaction was only marginally related to academic engagement—there was a positive relationship between “Number of research/scholarly presentations you made off campus” and “Number of scholarly works under review for publication you authored/co-authored,” and satisfaction.

Satisfaction & Obstacles

- Interestingly, none of the obstacles were related to satisfaction:
 - Program structure or requirements
 - Family obligations
 - Work/financial commitment
 - Availability of faculty
 - Course scheduling
 - Immigration laws or regulations
 - Other (please specify).

Overall Conclusions on Satisfaction – What predicts it?

Putting together all of the above significant predictors into one regression model showed which variables were most strongly tied to overall satisfaction, after controlling for the others. These were:

- **Students are treated with respect by faculty*****
- **Financial support*****
- **The intellectual climate of my program is positive*****
- **Having another mentor within one's department***
- **Receiving helpful advice on writing and revising your dissertation***

Variables that no longer mattered were:

- Receiving helpful advice on dissertation research.
- Personal work space.

That culture, mentorship, and finances stood out as important bolsters CU's efforts to conduct regular climate surveys. It also speaks to the importance of The Graduate School's most recent survey among graduate students, with a theme of finances, funding, and mentorship.