

Office of Undergraduate Research

- Assessment Report -

February 17, 2017

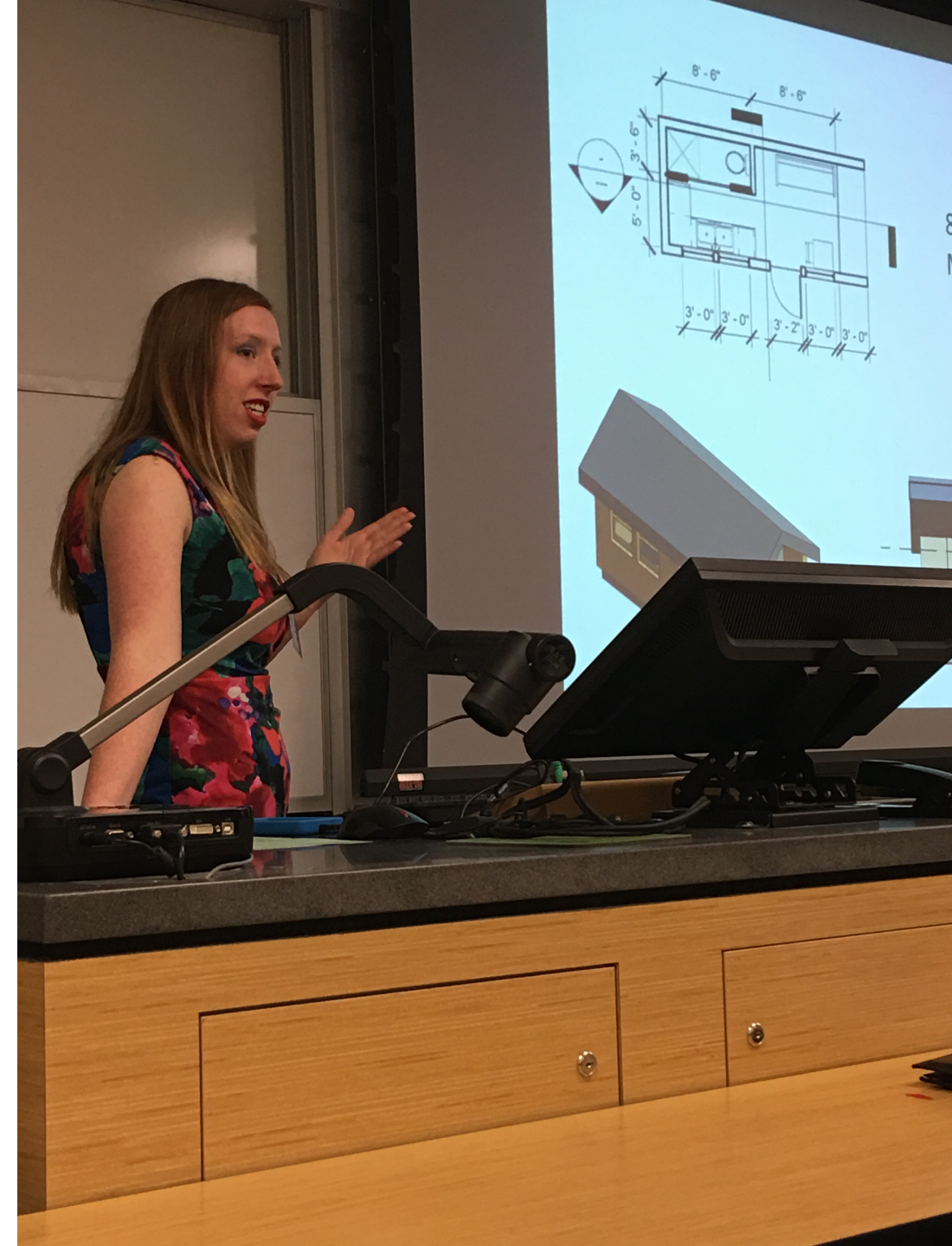
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Cate Showalter

Undergraduate Research Learning Outcomes

- Identify and utilize relevant previous work that supports their research
- Articulate a timely and important research question or creative objective
- Identify and utilize appropriate methodologies to address the research question or creative objective
- Meet the relevant field's standards for the responsible conduct of research, and effectively navigate challenges that arise in the research process
- Work collaboratively with other researchers, demonstrating effective communication and problem-solving skills
- Present the research effectively in a conference setting and a written publication
- Reflect constructively on their research experience, identifying what was learned, personal strengths and opportunities for growth, and how the experience informs their future educational and career goals

Meaningful Metrics

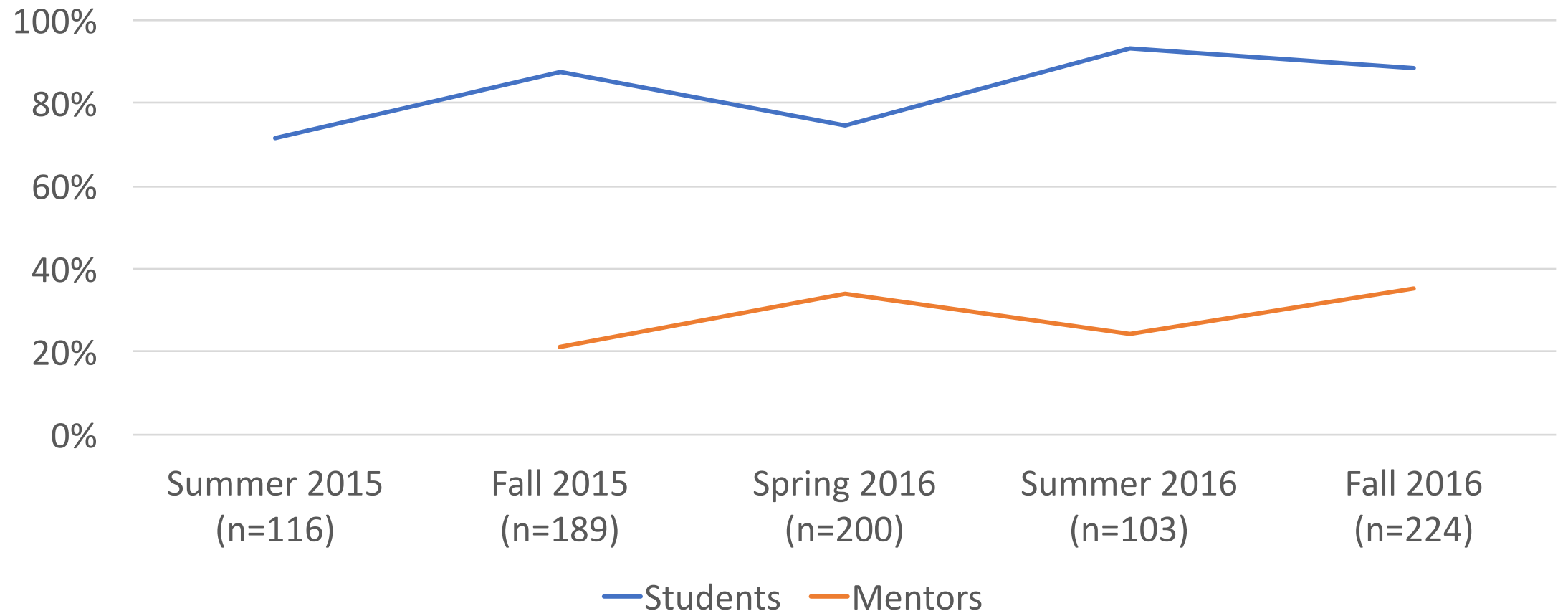
- How many?
- How often?
- How well?



UROP Final Report

- Required at end of each semester of participation
- Student and faculty mentors are asked to rate the student's progress toward achieving the learning outcomes
 - In my opinion, my undergraduate research experience has helped me to...[learning outcome]
 - Through participation in UROP this semester under your mentorship, the student has learned to...[learning outcome]
- Strongly Disagree - Disagree - Agree - Strongly Agree
- Open-ended questions
 - Describe your undergraduate research experience and its impact on your education and future goals
 - Tell us anything else you would like us to know about your experience with UROP

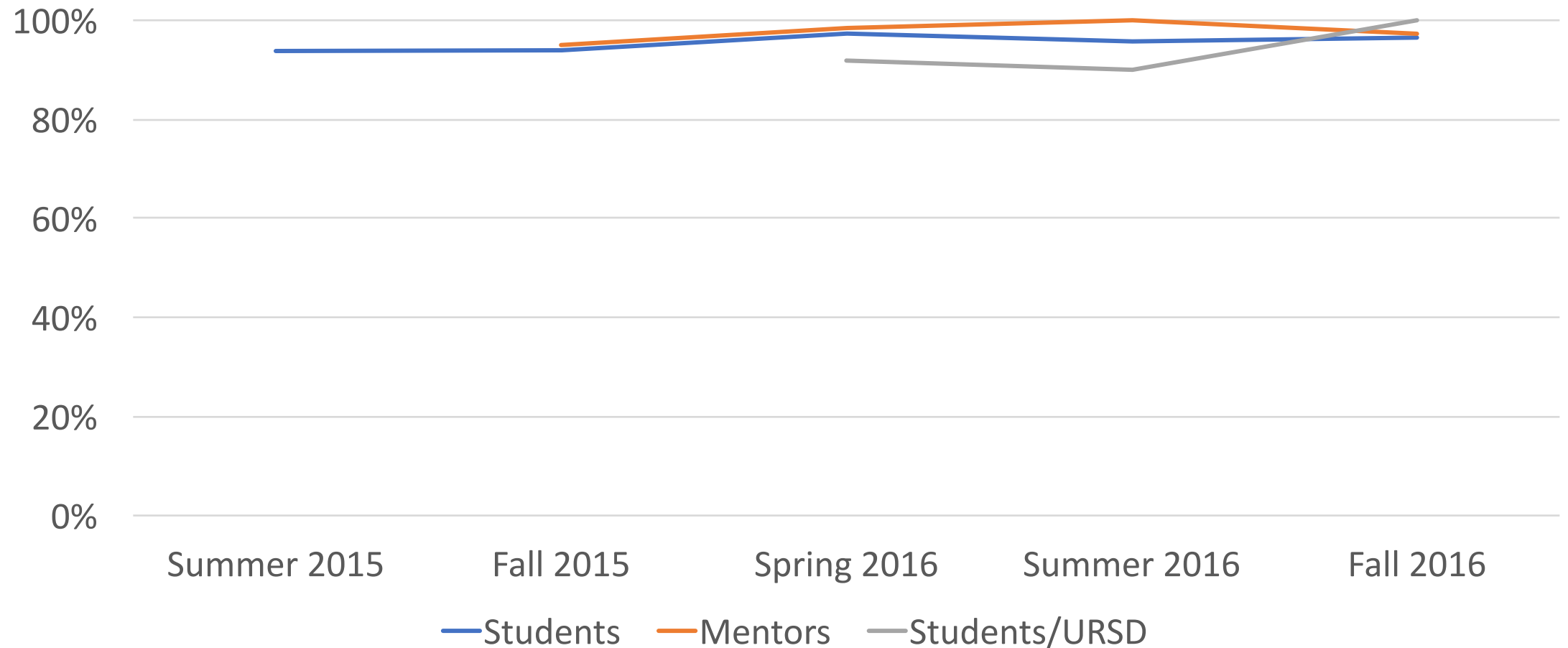
UROP Final Report Response Rates



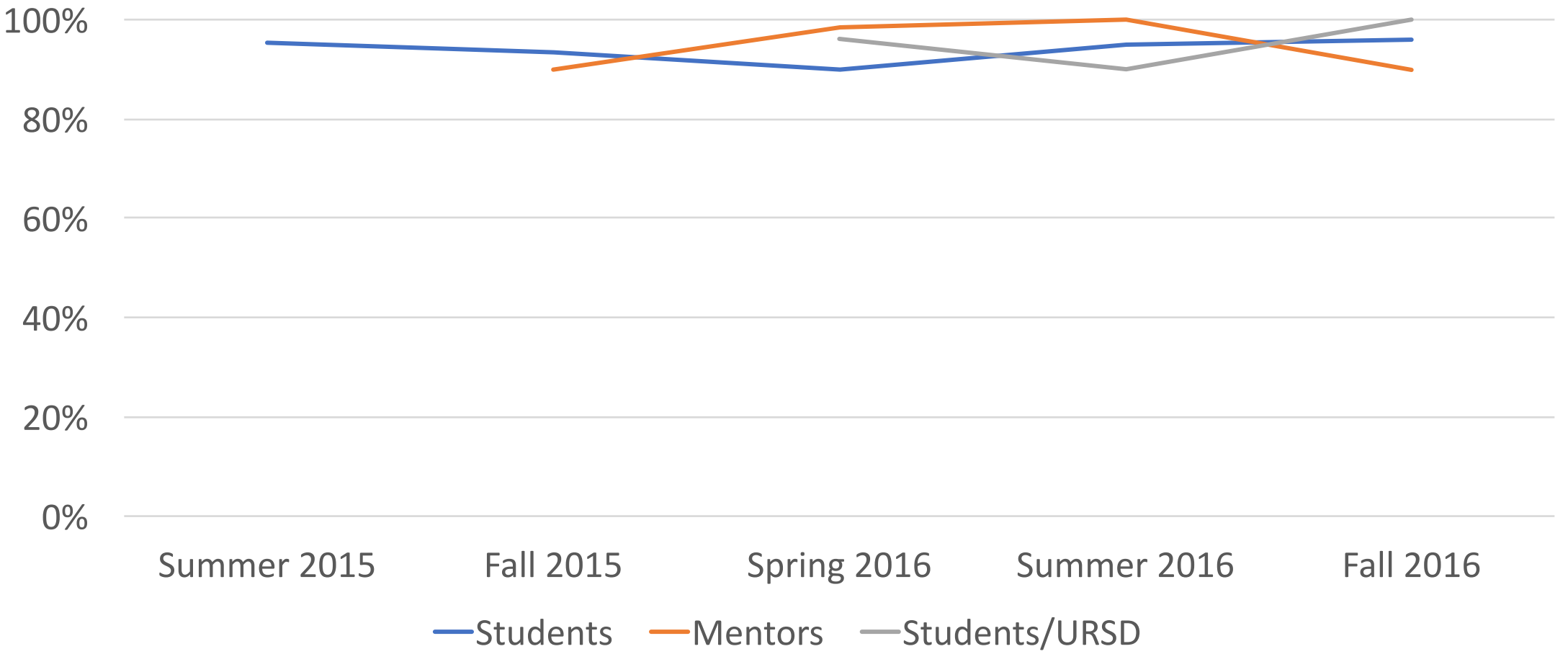
URSD Self-Evaluation

- Completed during graduation semester at time of application for the Undergraduate Research Scholar Designation
- Identical to student version of the UROP final report
- Caveats
 - Self-selected students
 - Lower n relative to UROP

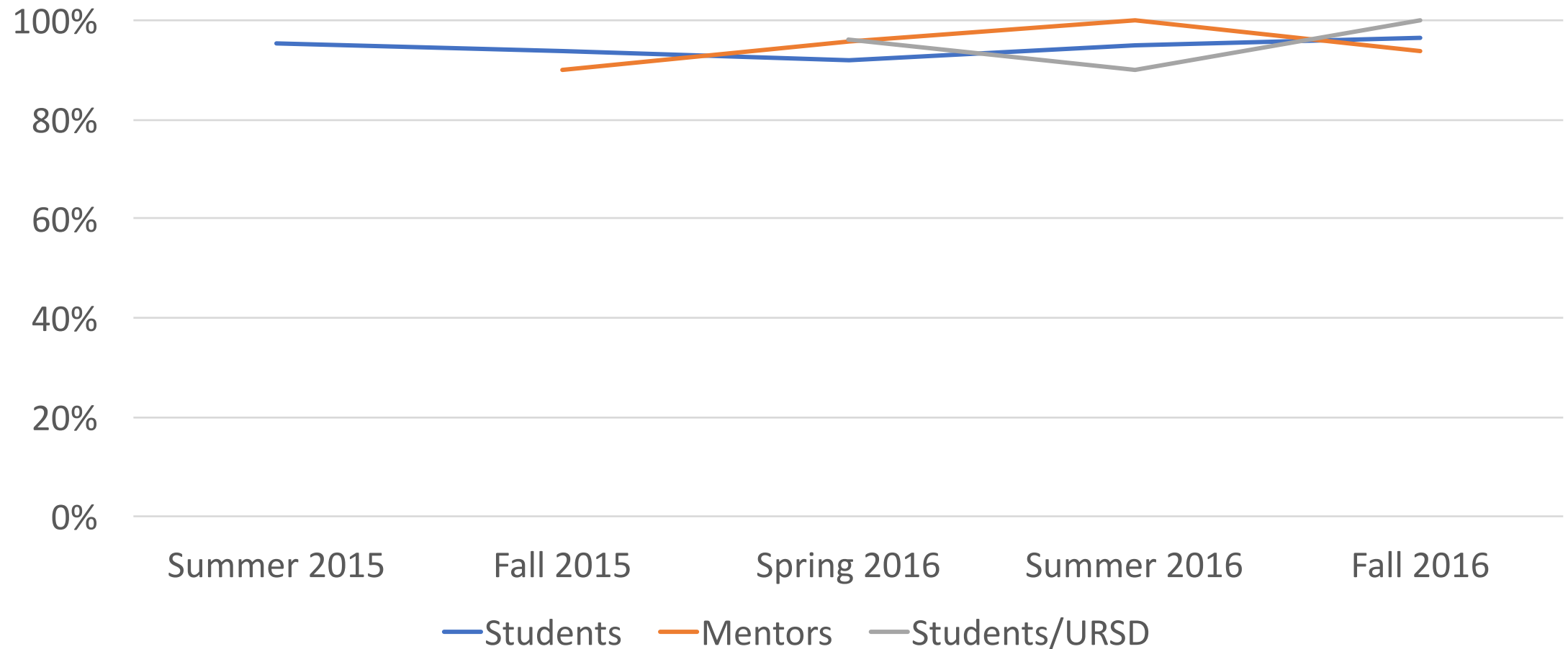
Identify and utilize relevant previous work that supports the research



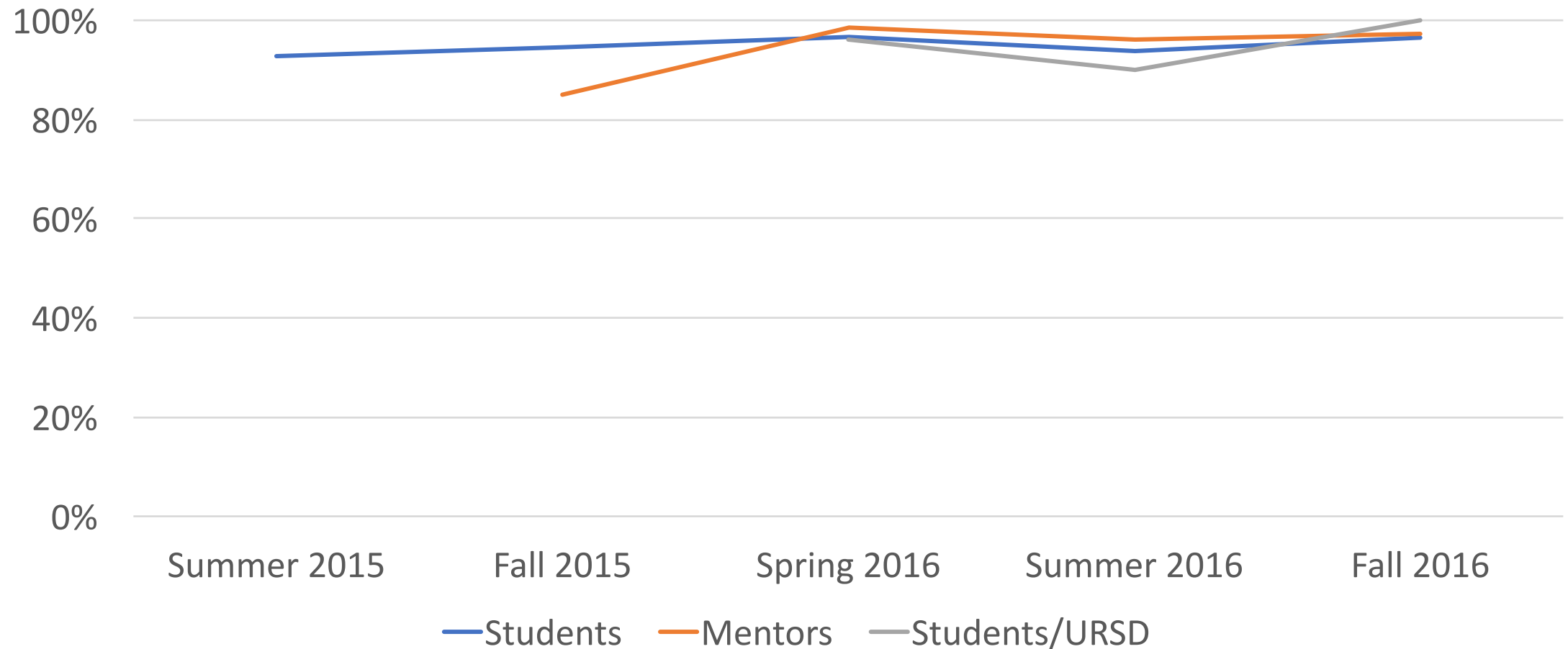
Articulate a timely and important research question or creative objective



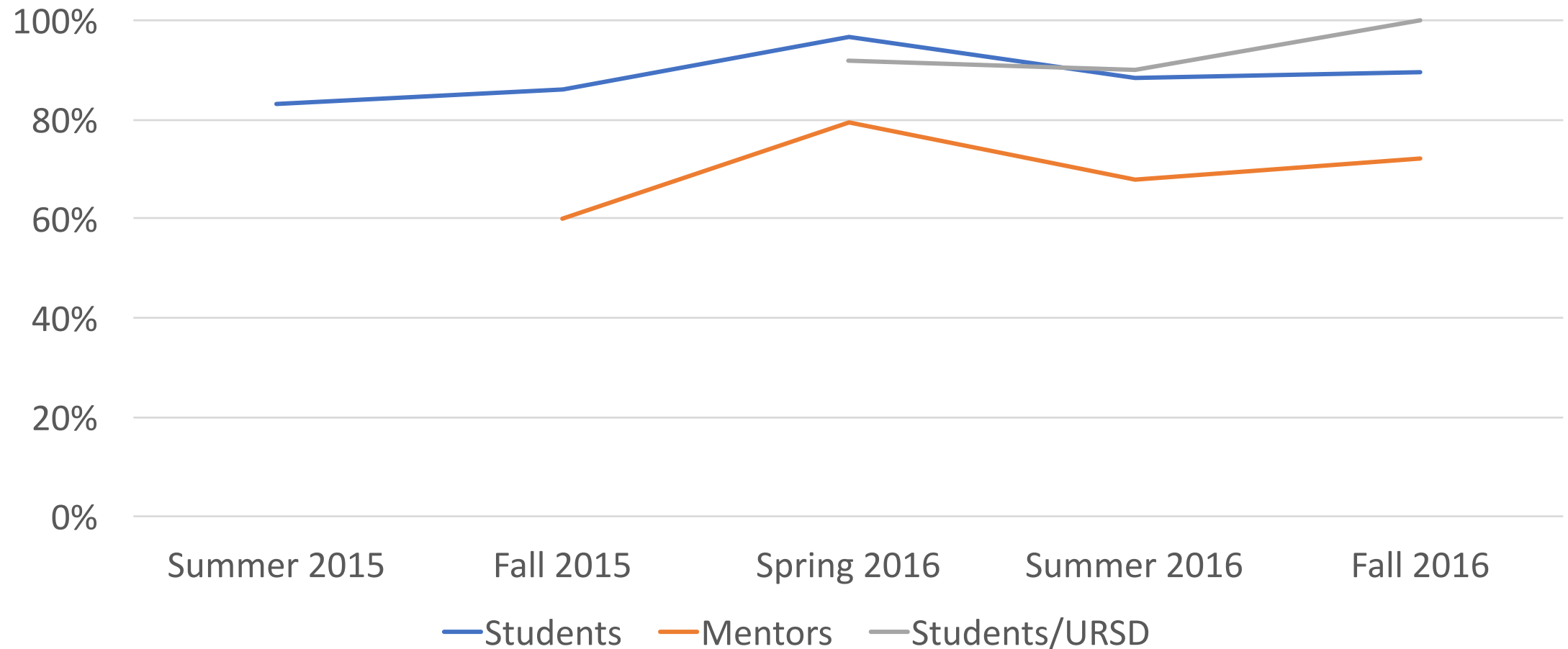
Identify and utilize appropriate methodologies to address the research question or creative objective



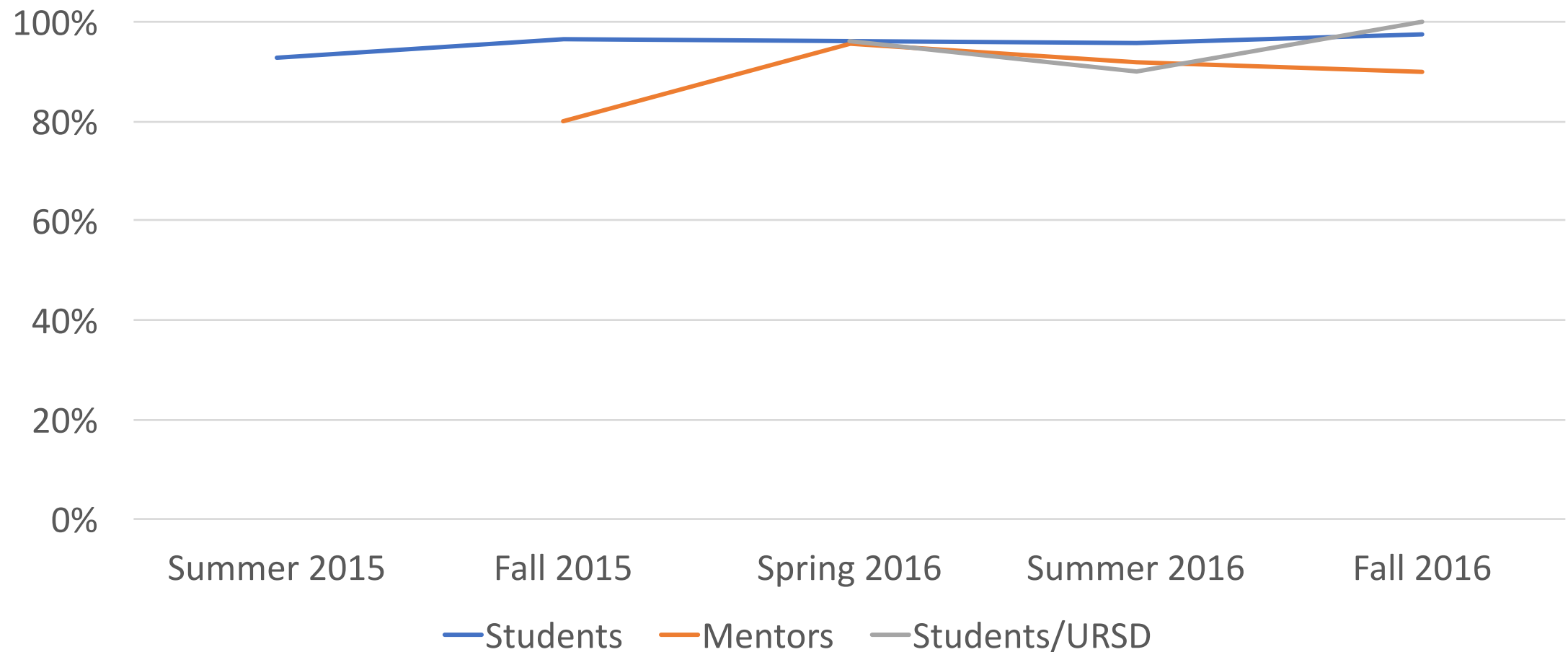
Meet the relevant field's standards for the responsible conduct of research, and effectively navigate challenges that arise in the research process



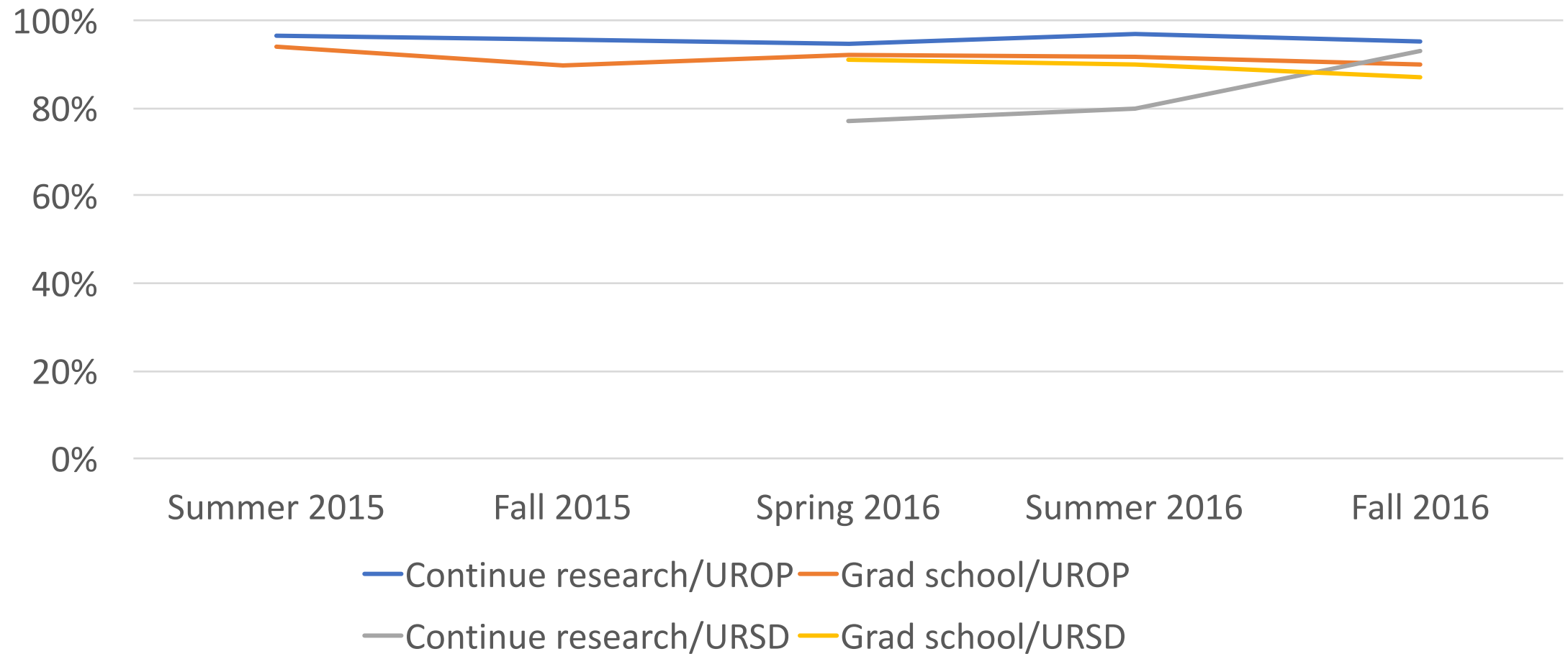
Present the research effectively in a conference setting and a written publication



Reflect constructively on the research experience (what was learned, personal strengths and opportunities for growth, and how the experience informs future educational/career goals)

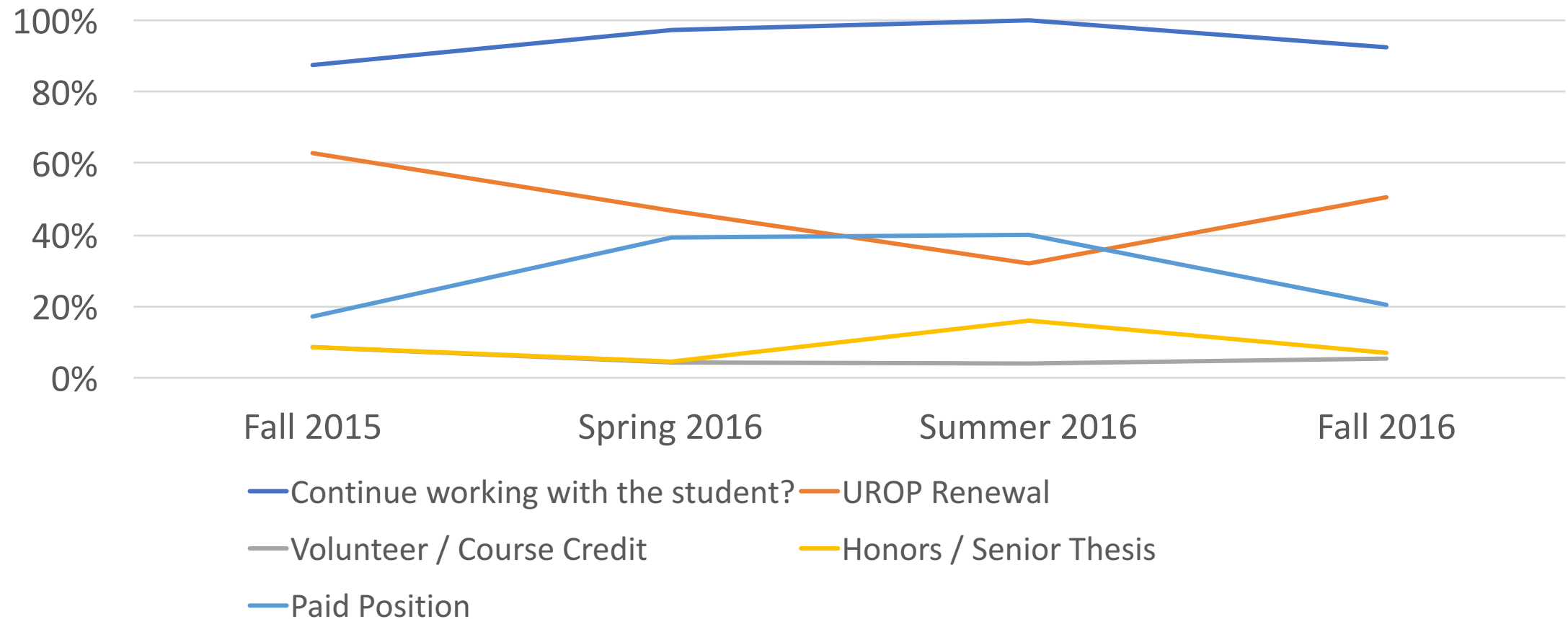


Future Plans (Students)



Future Plans (Mentors)

Adjustments to the online questionnaire to elicit better data regarding categories of continued collaboration (Spring 2017)



Qualitative Data / UROP Students

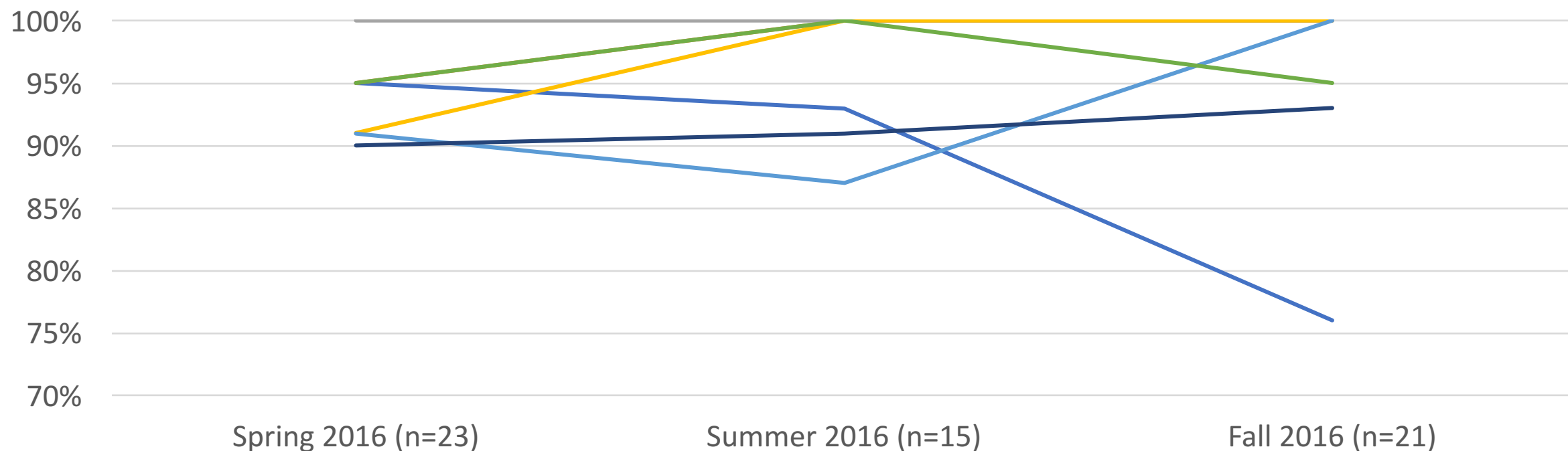
- *This has been a tremendous growing experience for me as I have learned more about my education, my future career and myself than I have with any other experience in my life.*
- *The impact has been tremendous. I have learned teamwork, communication, and research skills. It has been a positive and learning experience that can't be replaced.*
- *It encouraged me to become more informed in my interests, and to continue to find new questions and to maintain my knowledge with the most current relative research. It has set my goals to a higher degree and to be held to a higher standard.*

Qualitative Data / UROP Mentors

- *[The student] was a key member in trying a fair number of assays to measure kinetic parameters of a key enzyme we are working with...he was very instrumental in helping us pick the best methodology for this use.*
- *[The student] identified an error in our experimental protocol that we would have otherwise missed...It was only by knowing the paradigm and the background that she was able to identify this issue and raise it to me.*
- *One of the best experiences of my faculty career!*
- *Your program is fabulous. It has an extremely low amount of bureaucracy, and didn't waste my time at all. The students who participate are very excited and fired up about science.*
- *Students and mentors alike benefit from the UROP program...students working in a mentors lab not only learn the skills related to their career, but they also learn valuable communication that they will be able to use for the rest of their lives.*

Undergraduate Research Advising

- At end of semester, email sent to all students who had advising appointments over the semester; link to survey (Campus Labs)
- Response rate ~25%
 - Incentive: Drawing for \$25 gift card to bookstore

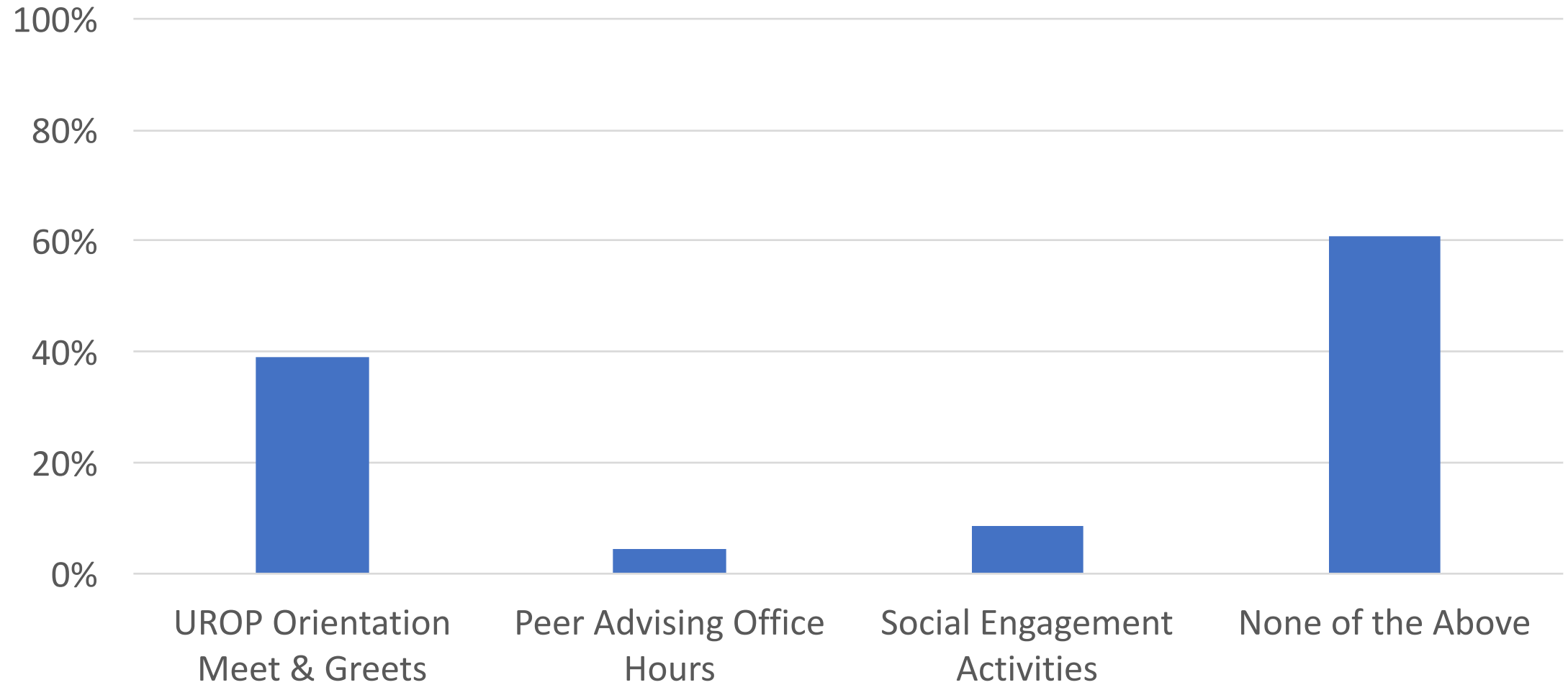


- I am satisfied with the advisor's follow-up communication with me.
- I felt the advisor was interested in my success as a student.
- I felt the advisor was respectful.
- I found the OUR advisor to be accessible.
- I was given access to adequate resources for getting involved with research.
- My questions were answered.
- The advisor's feedback was helpful.

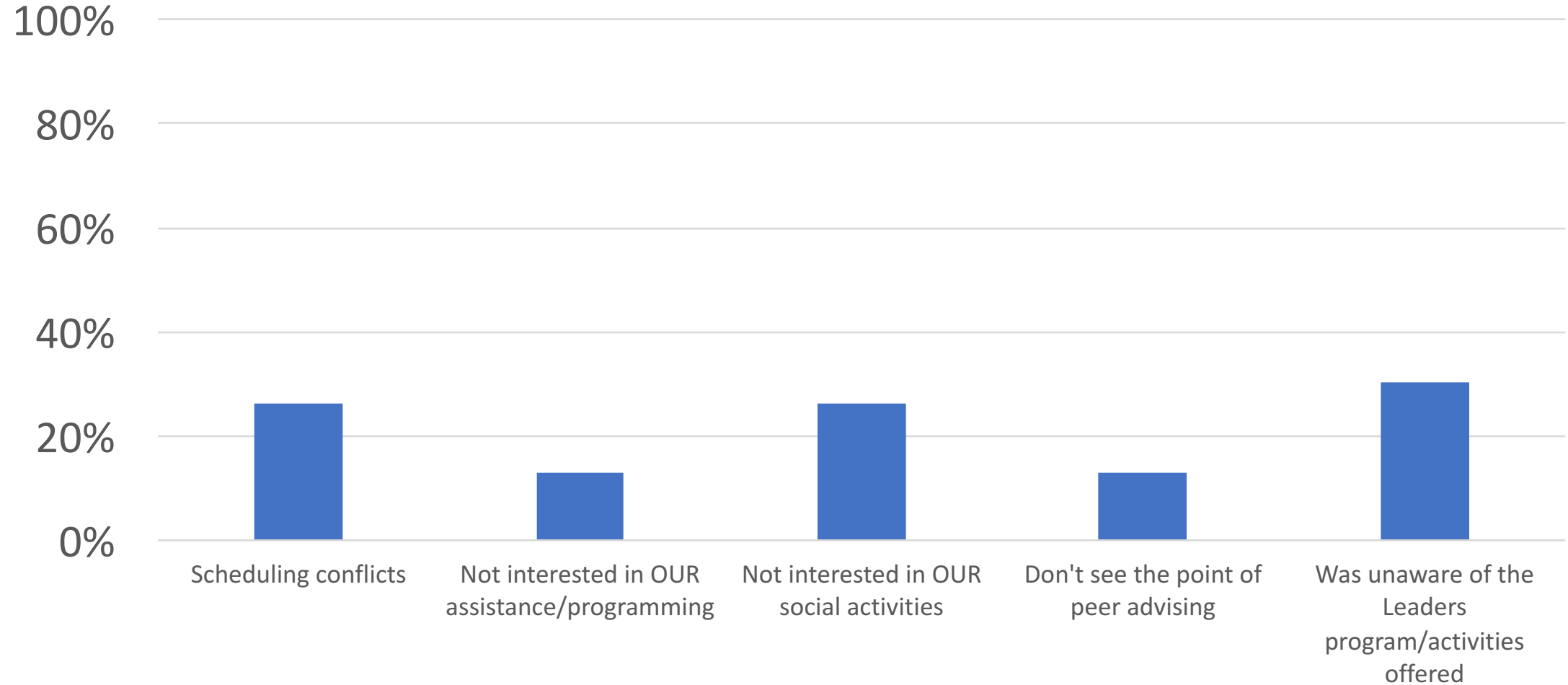
Undergraduate Research Leaders

- Metrics
 - Questions regarding services offered by the Leaders, e.g.
 - Have you interacted with the Undergraduate Research Leaders in any of the following capacities?
 - Have you found Undergraduate Research Leaders to be helpful?
 - Select the services that you think would be helpful to undergraduate student researchers
 - What recommendations do you have for how to make Peer Advising more relevant or accessible to you?
 - Sent invitation to online survey via OUR student listserv (~1300 students)
- Data
 - 23 respondents = 1% response rate (!)

Have you interacted with the Undergraduate Research Leaders in any of the following capacities?

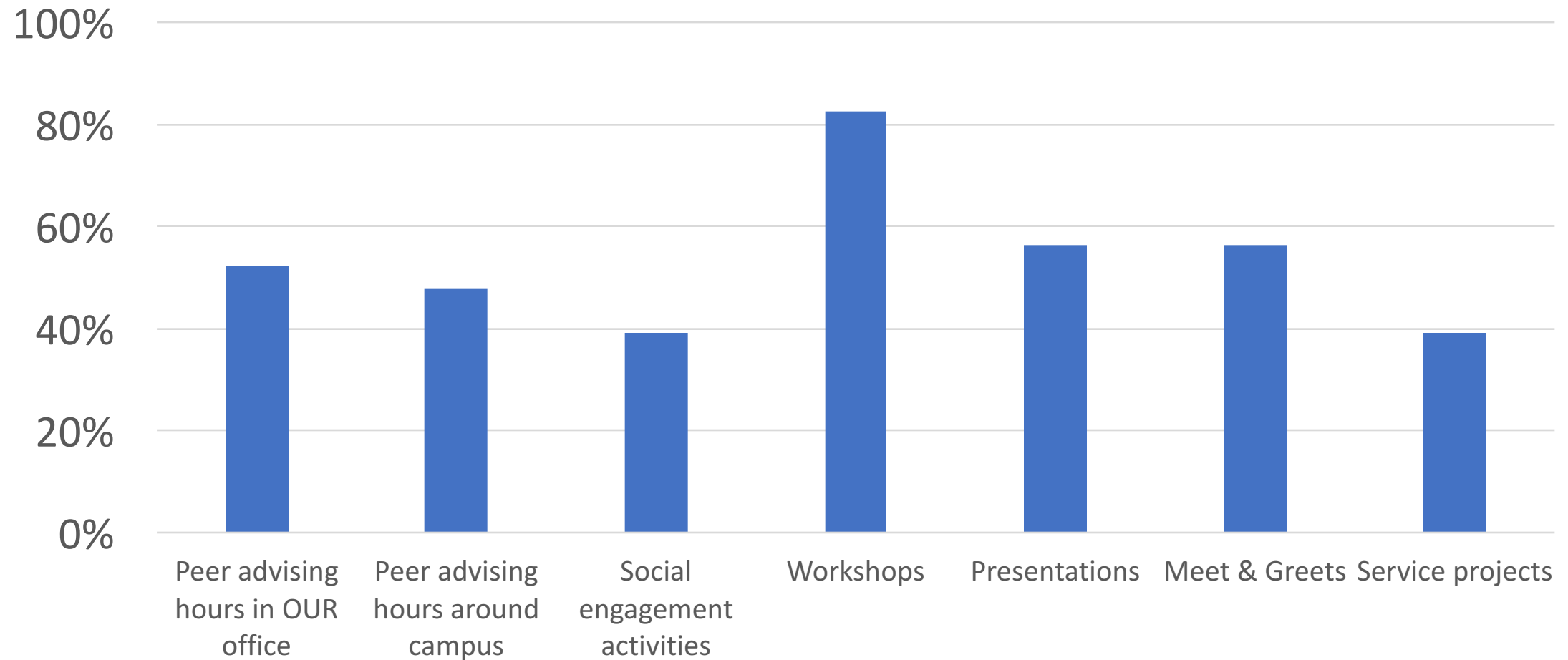


Indicate the reason(s) you have not used the services offered by the OUR



Select the services that you think are most helpful to undergraduate students

Leaders involved in survey design and analysis of the data

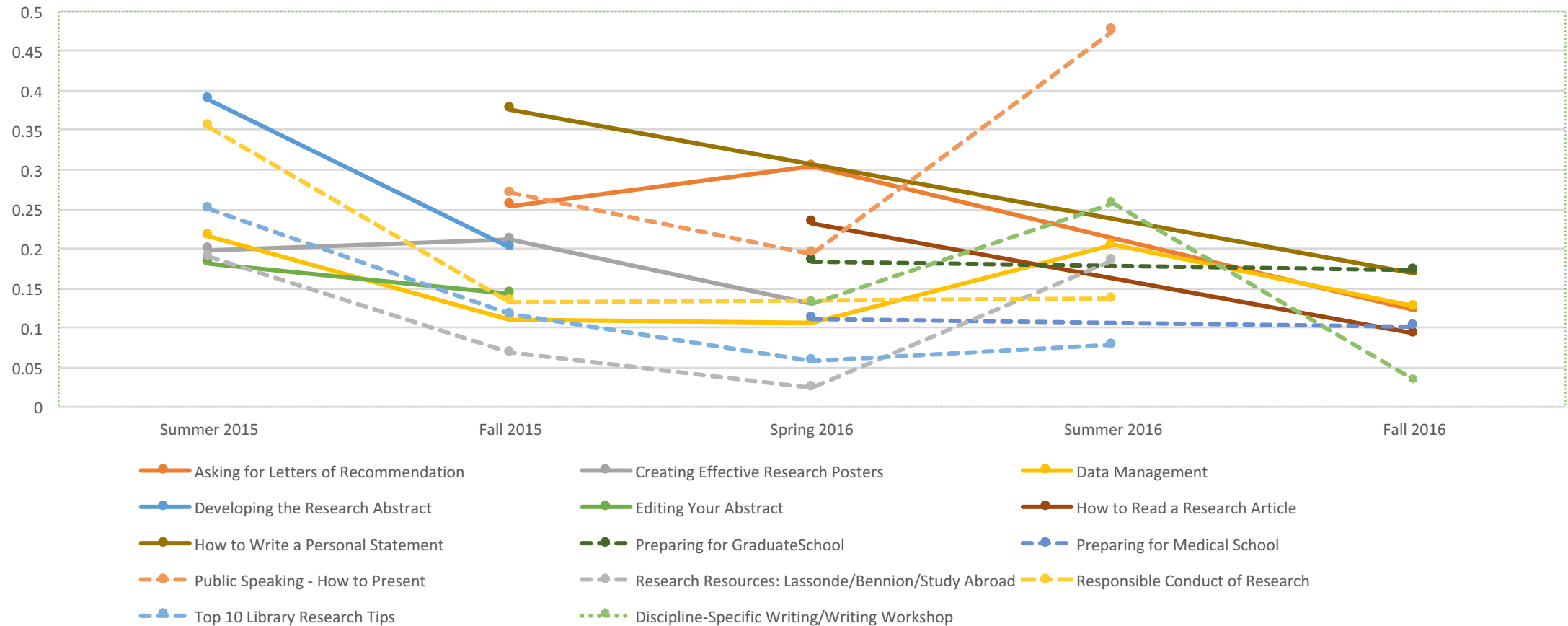


Undergraduate Research Education Series

- Metrics
 - Attendances count (as proportion of # UROP scholars)
 - Event evaluation surveys
- Data
 - Event evaluation survey response rate = 18-100%

URES Attendance Data

attendances as proportion of # UROP scholars



URES Evaluation Data

- Would you recommend this event to another student? Why/Why not?
- **Fall 2016**
 - **45%** (n=29; response rate 71%)
 - **71%** (n=14; response rate 64%)
 - **79%** (n=14; response rate 18%)
 - **81%** (n=37; response rate 74%)
 - **96%** (n=26,26; response rate 57%,54%)
 - **100%** (x7; n=8-33; response rate 53%-100%)

I learned a lot about presenting that I didn't even think mattered. This presentation helped me a lot and I feel more prepared to present now.

I found this information session to be very informative with details I could use to improve both my research and just my general management skills.

[The professor's] use of personal examples in the "Personal Statement" seminar was instructional and soulful. His assurances were nice, but his plan was revolutionary.

It was a great way to see the 'big picture.' How to actually apply the research I'm doing to my future goals is something I haven't thought about a lot, so highlighting some examples of how I can do so is great.

Assessment inspires positive change

- Undergraduate Research Advising – *systematically collected* student feedback:
 - Previously, advisor followed up with an email containing relevant documents, links to our programs, upcoming deadlines, next steps etc.
 - Advisor now also asks whether there is any additional follow-up (or method of follow-up) that they would like
- Undergraduate Research Leaders – *systematically collected* student feedback:
 - Revised programming: Introduced poster making and public speaking workshops; hosting open house hours; eliminated social engagement activities.
 - Will increase advertising in Summer 2017 semester
- URES – *systematically collected* student feedback:
 - Drives selection of future presentation topics (highest attendance, most positive feedback)
 - Is passed on to presenters when appropriate

Additional ways we are assessing undergraduate research at the U

- Presentations and publications by undergraduate student researchers
 - Online form for submissions
 - Data so far likely tells us more about reporting than about actual numbers of presentations and publications
- Evaluating the quality of student work
 - Evaluation sheets at the URS?
 - Faculty mentor learning outcomes assessment: “Please describe at least one specific example that demonstrates how the student has met the above learning outcomes.” (needs to be coded...)

New Mentor Development Program: Mentoring Core Competencies

- Establishing expectations
- Maintaining effective communication
- Assessing understanding
- Fostering independence
- Addressing diversity
- Dealing with research ethics

Participant Characteristics

n=22

Research Focus	
Behavioral Research	4
Clinical Research	1
Community Engaged Research	1
Educational Research	2
Field/Applied Research	4
Lab-based Research	7
Theoretical Research	3

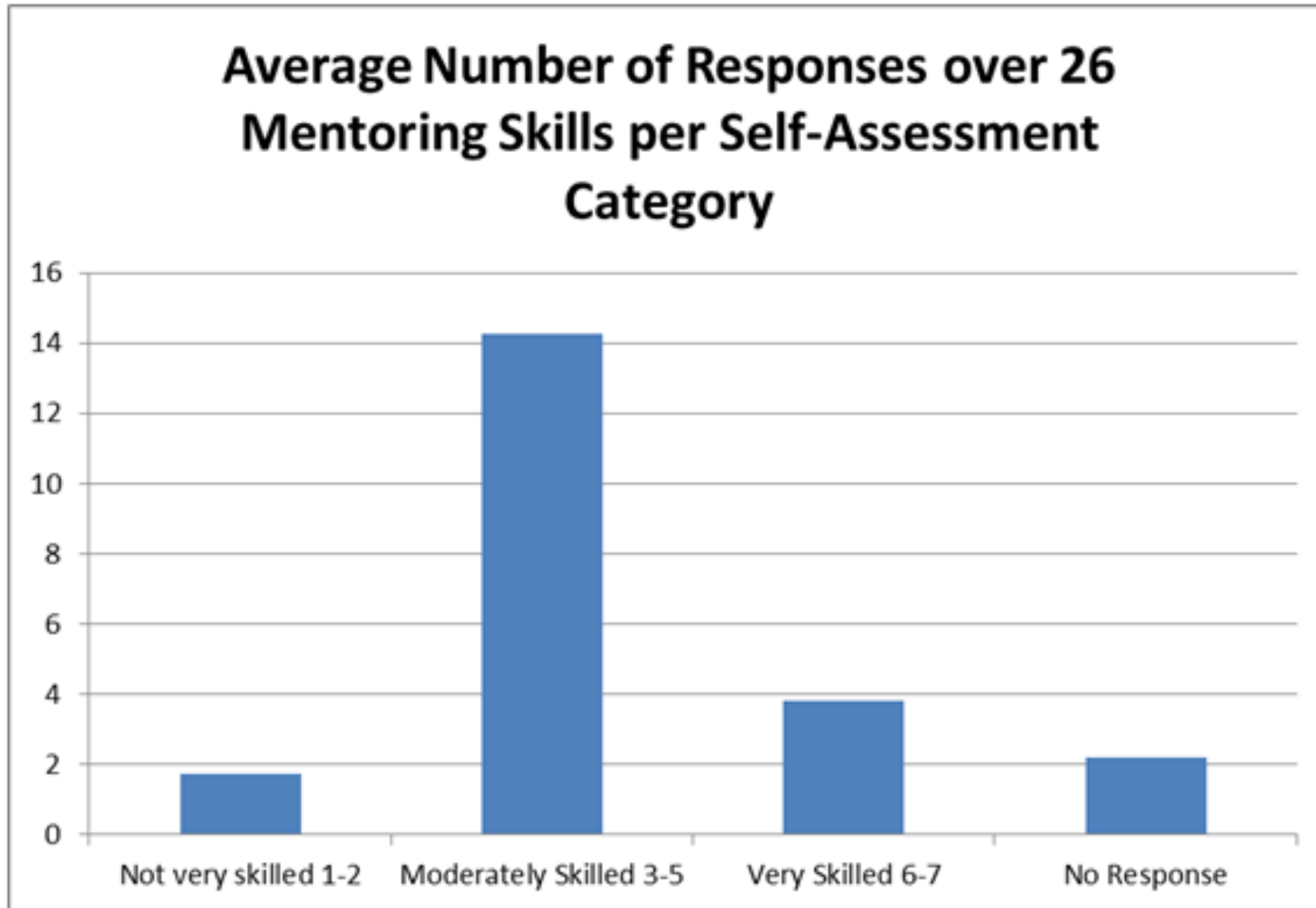
Years as a formal researcher mentor	
0-2 years	16
3-5 years	2
More than 5 years	3
NA	1

Position	
Graduate Student	13*
Post-doctoral Fellow	4*
Assistant Professor	4
Associate Professor	1
Administrator	1

*One responder marked "postdoctoral/grad student"

- Active Listening
- Providing constructive feedback
- Establishing a relationship built on trust
- Identifying and accommodating different communication styles
- Employing strategies to improve communication with mentees
- Coordinating effectively with your mentees' other mentors
- Working with mentees to set clear expectations of the mentoring relationship
- Aligning your expectations with your mentees
- Considering how personal and professional differences may impact expectations
- Working with mentees to set research goals
- Helping mentees to develop strategies to meet goals
- Accurately estimating your mentees' level of scientific knowledge
- Accurately estimating your mentees' ability to conduct research
- Employing strategies to enhance your mentees' knowledge and abilities
- Motivating your mentees
- Building mentees' confidence
- Stimulating your mentees' creativity
- Acknowledging your mentees' professional contributions
- Negotiating a path to professional independence with your mentees
- Taking into account the biases and prejudices you bring to the mentor/mentee relationship
- Working effectively with mentees whose personal background is different from your own
- Helping your mentees network effectively
- Helping your mentees set career goals
- Helping your mentees balance work with their personal life
- Understanding your impact as a role model
- Helping your mentees acquire resources

Pre-survey Mentoring Skills Responses



*On 26 different mentoring skills, the average number of responses per self-assessment category (total 22 participants).

A perpetual challenge...

- We don't (yet!) know **how many U students participate in undergraduate research**
- More importantly, until we know who they are, we can't
 - Offer them our services
 - Assess their achievement of learning outcomes and respond to their needs

But we're making progress...

- Students participating in OUR programs
 - High-quality data with unique identifiers; database improvements
- Students funded through other programs
 - Campus-wide partnerships, e.g. REUs, gradual “infiltration”
- Students employed as researchers (inconsistent use of job codes)
 - Increasing use of online opportunity database to post paid positions
- Student research volunteers
 - Increasing visibility of our office and participation by mentors
- Students taking Research-Intensive Classes
 - High-quality data with unique identifiers; depends on reporting by departments
- And...FAR! (thank you, Mark St. Andre!)

Undergraduate Involvement ☒

*Student Name:

*Role(s):

× Co-Author

Remove

Description:

*Student Name:

*Role(s):

× Other or additional role (please describe)

× Volunteer research assistant

Remove

Description:

Add Undergraduate Student

Thank you.

- OUR@utah.edu
- OUR.utah.edu



ROCH 2017 Presenters