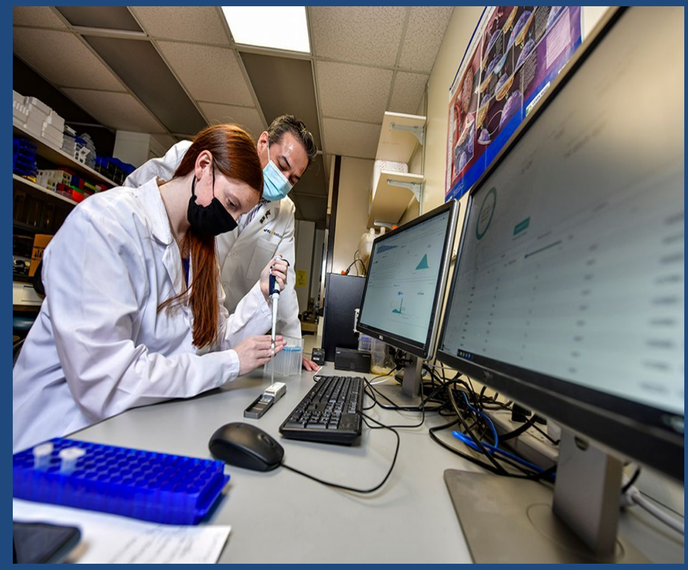
Discussing Barriers for Undergraduate Students to Participate in Research Experiences

Cinthia Pacheco, Shannon Cawley, Rachel King*, Rachel Midkiff

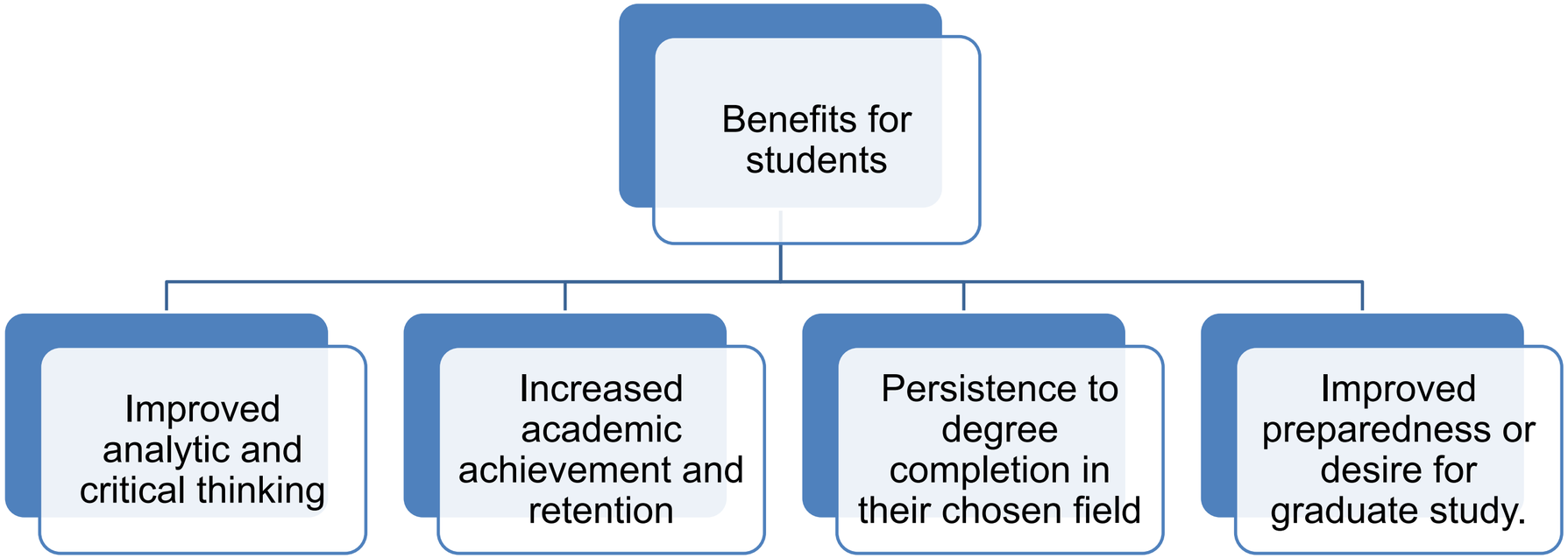
Undergraduate Research Experiences



"High-impact educational practices"

(Kuh, 2008; Kuh et al. ,2017)

Undergraduate Research Experiences



Job market

Career in Academia

(Hathaway *et al*., 2002; Kistner et al., 2021; Lopatto, 2007; Lopatto and Tobias, 2010; Seymour *et al*., 2004; Hunter *et al*., 2007; Russell *et al*., 2007; Thiry and Laursen, 2011)

Research Apprenticeship Program (RAP)

RAP: 2 semesters – 2 parts

1. Mentored Research

2. Introduction to Research course

~50% of participants supported by Federal Work Study (FWS), grants, contracts

RAP impact retention at WVU

ARTICLE

Increasing Undergraduate Retention in Appalachia through a Mentored Undergraduate Research Experience

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West Virginia University
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Carinna Ferguson, *University of Maryland*

SPUR
SCHOLARSHIP AND PRACTICE OF UNDERGRADUATE RESEARCH
The Journal of the Council on Undergraduate Research

2023

RAP FTF retention

	Total (100%)	Retained	%	RAP v WVU %
All	868 (100)	817	**94**	↑ **26**
1st year	372 (43)	341	**92**	↑ **12**
First-gen	209 (24)	189	**90**	↑ **22**
Minority	155 (18)	145	**94**	↑ **19**
Black	57 (7)	47	**82**	↑ **10**
FWS	413 (48)	375	**91**	---
Rural (FORHP)	191 (22)	182	**95**	---

Addressing the Problem

Interest
X
Actual participation in RAP

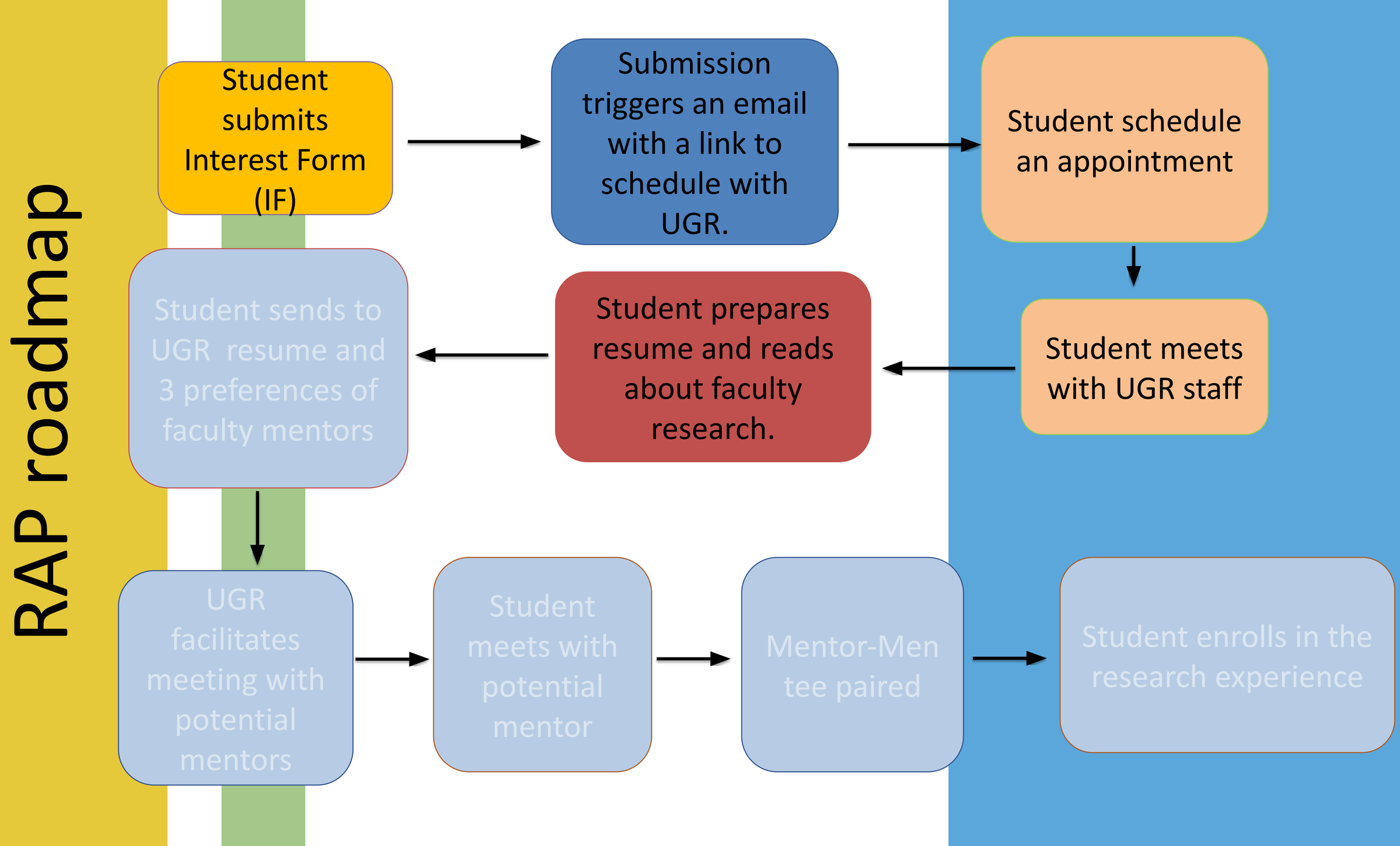
Summer melt
X
Programming melt

- *Summer melt*: HS students who fail to enroll in college the fall following their graduation.
- *Programming melt*: WVU students who cease all communications with administrators of RAP after initially expressing interest.

How do students show interest in RAP?

- New Student Orientation
- RAP team meet advisors
- Ambassadors present in first year classes and events

RAP roadmap


Student submits Interest Form (IF)
Submission triggers an email with a link to schedule with UGR.
Student schedule an appointment
Student meets with UGR staff
Student prepares resume and reads about faculty research.
Student sends to UGR resume and 3 preferences of faculty mentors
UGR facilitates meeting with potential mentors
Student meets with potential mentor
Mentor-Mentee paired
Student enrolls in the research experience

WVU Undergraduate Research Mentors

Enter any text into search boxes.

For example, type *biology* into 'Major' or *Fashion* into 'Department'

Show 10 entries

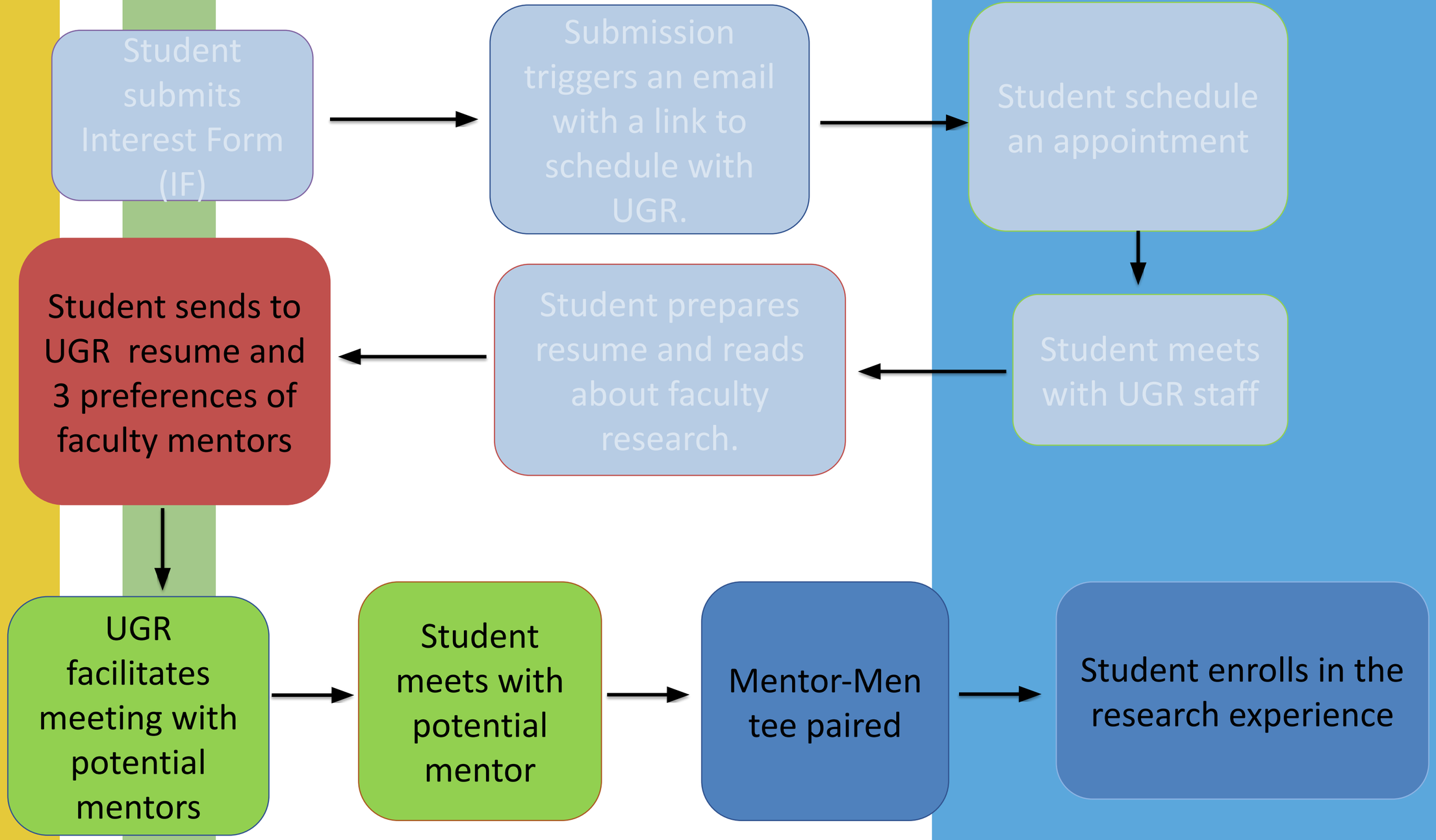
Search:

First Name	Last Name	Email	College	Department	Student Majors Sought	Comments
All	All	All	All	All	All	All
Jeremy	Roberts	jeremy.roberts@mail.wvu.edu	Business & Economics	Academic Incubator - Global Supply Chain Managment	Design (Virtual/Augmented reality) & Education	Two research paths.... 1) How current augmented reali virtual reality usage in education impact student learnir specific to any field). Literature review of research and usage. 2) Create Virtual Reality and Augmented Realit environments for Supply Chain Management courses a evaluating how it improves or hinders student learning in a live classroom environment.
Angela	Gracie Hines	adm0059@mix.wvu.edu	BHSS	Accounting & Business	Accounting & Business; sociology	
Matthew	Wilson	matt.wilson@mail.wvu.edu	Davis	ANS and PSS	Animal Science, Plant Science, possibly biology.	We use big data and machine learning to improve the footprint of animal agriculture, reducing input costs for and reducing methane emissions for the industry. We f quantifying inputs of grazing livestock (beef and lamb).
Joseph	McNeel	Jmcneel@wvu.edu	Davis College of ag and natural resources	Appalachian Hardwood Center	Wood science, engineering	Cross laminated timber from hardwood species. Creati testing them and creating structures.
		NA				
Abid	Rizvi	abid.rizvi@hsc.wvu.edu	School of Medicine	Behavior medicine and psychiatry		My work mostly focus on dataset analysis chiefly CDC ambulatory medical care survey and National Hospital in which I try to see trend in diagnosis and prescription medication.
Visvanathan	Ramamurthy	ramamurthyv@hsc.wvu.edu	School of Medicine	Biochemistry	Biochemistry, Biology or anything in Life Sciences	
						I am using sedimentary deposits from ancient terrestria

Showing 1 to 10 of 100 entries

Previous 1 2 3 4 5 … 10 Next

RAP roadmap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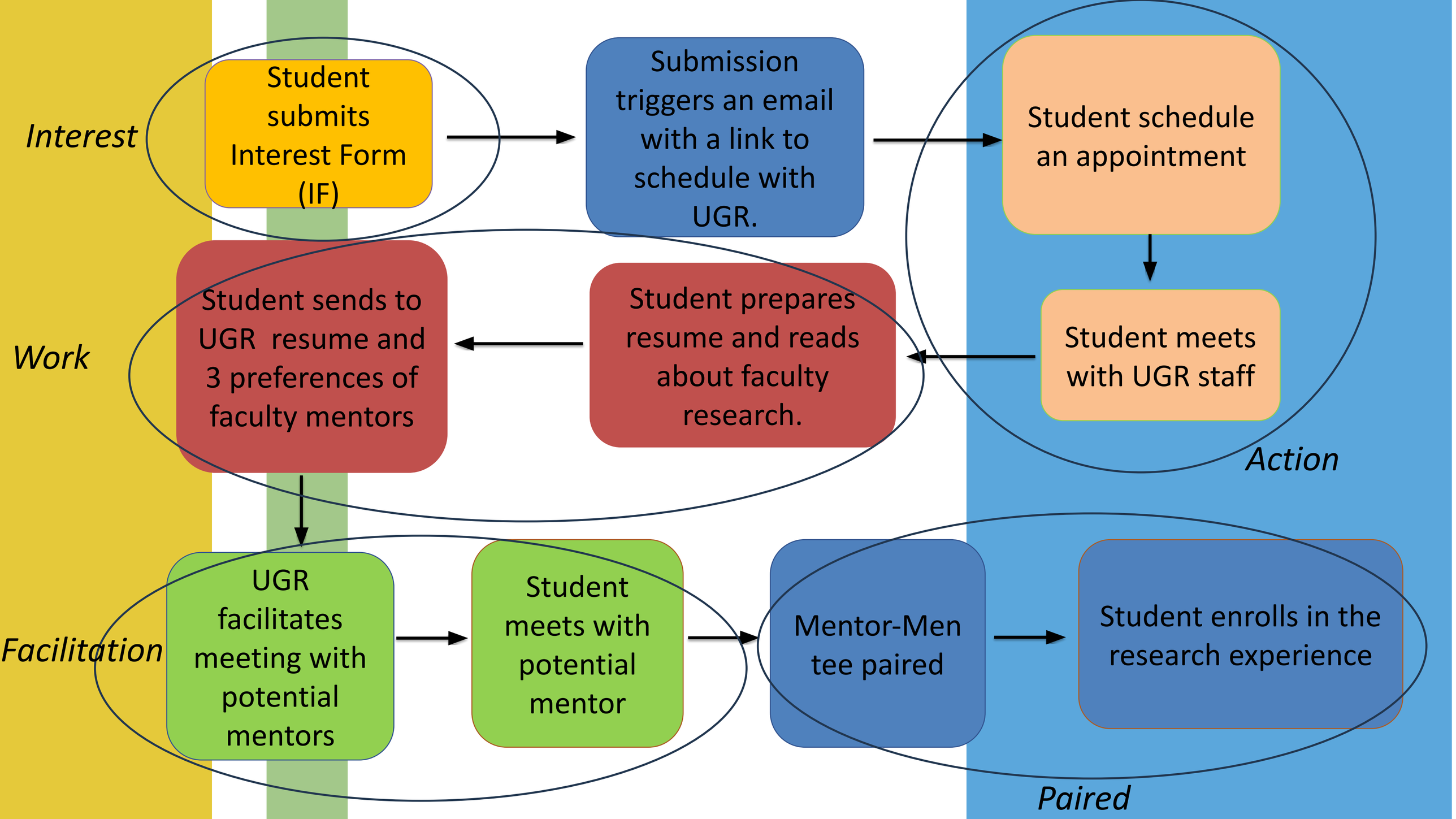
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Student schedule an appointment
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Student sends to UGR resume and 3 preferences of faculty mentors
Work
Action
Facilitation
UGR facilitates meeting with potential mentors
Student meets with potential mentor
Mentor-Mentee paired
Student enrolls in the research experience
Paired

Methods

- Data collected from recruitment spreadsheets of 4 consecutive semesters of RAP.
- Students categorized in 5 different stages
- Correlate students in each one of the 5 stages with their field of study:

  - ✔ Physical Sciences
  - ✔ Engineering and Technology
  - ✔ Behavioral and Social Sciences
  - ✔ Biological and Health Sciences
  - ✔ Arts and Humanities
  - ✔ Undecided
  - ✔ Multiple Majors (MM): MM STEM, MM non-STEM, and MM STEM/non-STEM

Results

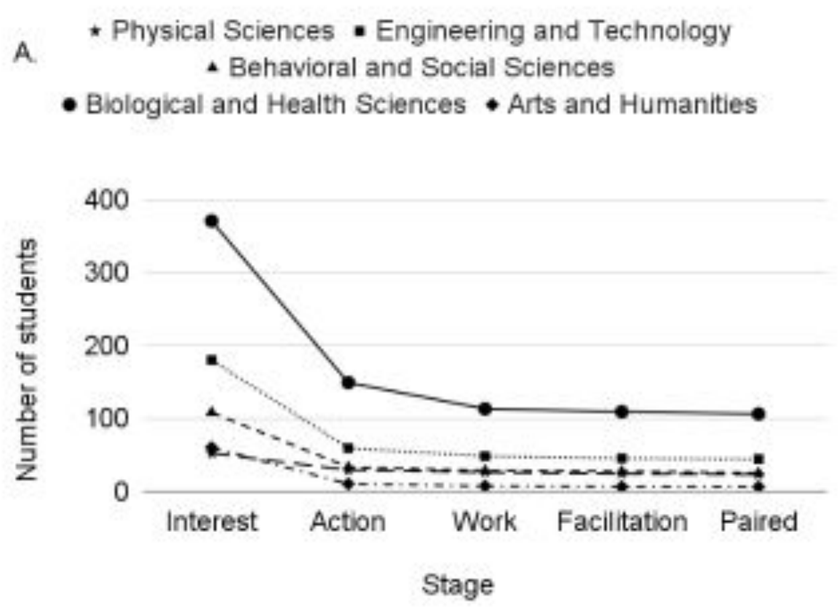
Table 2. Interest compared with participation in fall and spring cohorts of RAP.

Cohort	Number of students who showed interest	Number of students paired
Fall	835	227
Spring	550	133
Total	1385	360

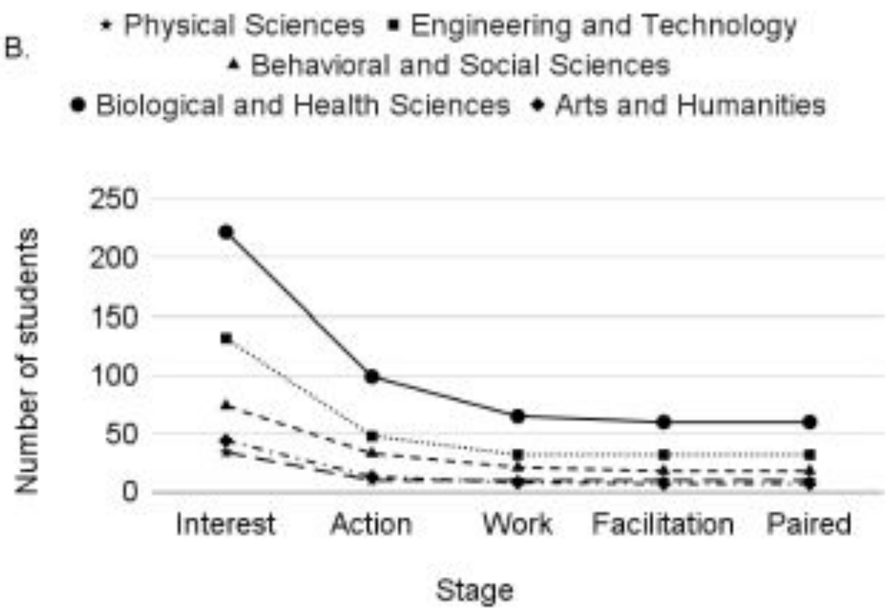
Table 1. Percentage of students who expressed interest, categorized by their year in school

Cohort	Year in School			
	Freshman	Sophomores	Juniors	Seniors
Fall	68%	21%	7%	2%
Spring	63%	27%	7%	1%

Results

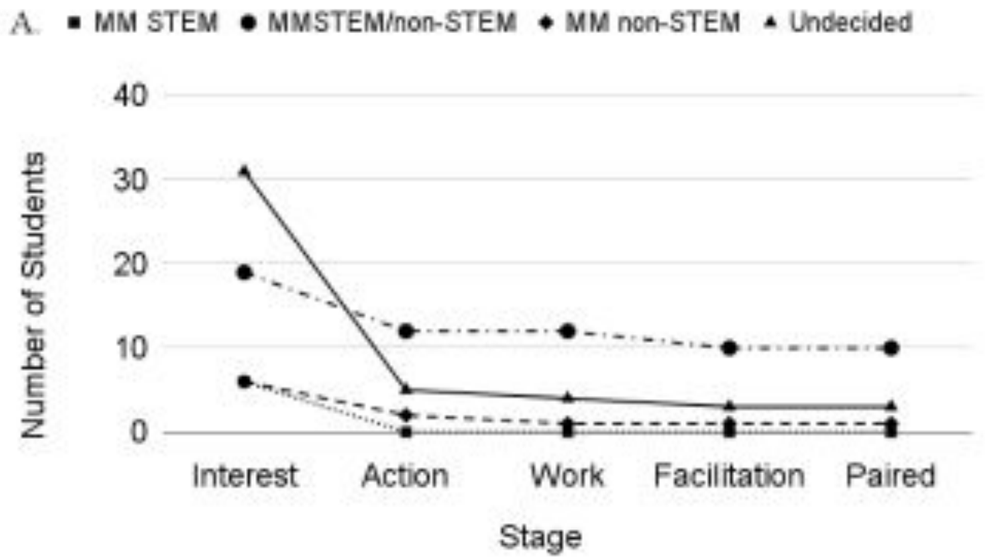


Fall cohorts

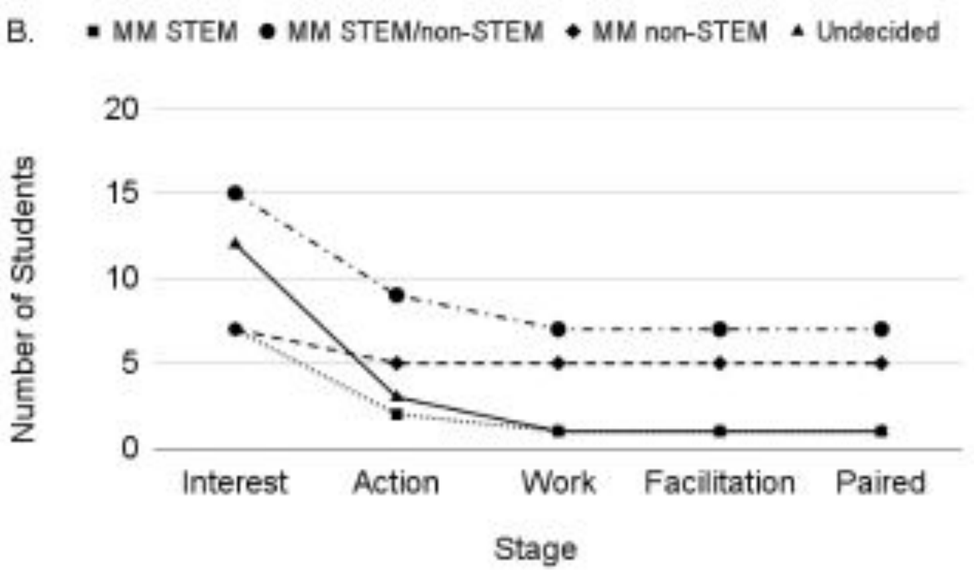


Spring cohorts

Results



Fall cohorts



Spring cohorts

Conclusions and Future steps

- ✔ Highest programming melt during the *Action* stage.
- ✔ Programming melt decreases drastically when students progressed to the next stages.
- ✔ Awareness and accessibly barriers
- ✔ Understanding students decision making to participate in research experiences: the role of stipends.

Conclusions and Future steps

✔Review language to advertise.

- Not sounding too selective or too exclusive
- Future studies with focus groups

✔ Increase participation in UR through CUREs

Thank you!

Let's go.™

Contact us!

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Suggestions on strategies to reduce programming melt.