

**Importance of the Undergraduate Research Experience for Job Opportunities**  
**Professional Enrichment Center (CEP)**  
**Research Academy for Faculty and Postdoctoral Fellows**  
**University of Puerto Rico- Mayagüez Campus**

As part of ongoing research studies at the University of Puerto Rico - Mayagüez, a study based research survey was conducted in order to assess the importance of research as an element of the students' experience. As immediate benefit, the companies responses' will help us identify the student profile that the companies seek when recruiting and to improve those potential areas in the student profile. This report presents a general idea of the preliminary data collected.

**General objectives:**

- Assess the importance of the research experience as an element of the students' profile.
- Explore the skills that the companies seek when they recruit students.
- Evaluate if research elements such as projects, publications, oral presentations, are of interest for the companies.
- Know the perspective that companies have about the potential benefits for their companies in recruiting students with research experience.
- Determine if the undergraduate research experience in or outside of Puerto Rico is important for the companies.
- Explore the disciplines that the companies believe UPRM should develop to benefit the students.
- Measure the satisfaction level of the academic and professional profile of the UPRM students.
- Propose comparisons between some variables of interest.

**Summary:**

We invited the companies who participated in Job Fairs to voluntarily take a survey about the importance of research as an element of the students' experience.

The Job Fairs considered for participation were:

- The 26th Annual Job Fair (on Friday, September 26, 2014) at the Rafael A. Mangual Coliseum organized by the Placement Office at UPRM, and the Job Fair 2014 event at the ADEM building (on Thursday, September 25, 2014).
- The Spring Job Fair (on Friday, February 27, 2015) at the Rafael A. Mangual Coliseum organized by the Placement Office at UPRM.

A total of 41 companies accepted to participate in the survey. Three quarters of the companies that participated in the survey, correspond to the public sector. Among the participants were companies in manufacturing, technology and software development, telecommunications, pharmaceutical, financial and accounting, security, logistics and transportation, to name a few. In this report, the responses are summarized and the results are shown through tables and graphics, most of them outputs from the *Qualtrics* platform. Also, it is necessary to mention that

some companies leave questions unanswered due to particular reasons. Therefore, the total responses in each question can vary.

**Results:**

The results of the survey revealed that most of the companies contemplated recruiting more than 10 students. The companies evaluated the skills that they seek when recruiting students determining that strong communication skills are the most important while the preparations of a scientific poster is the least important. In addition, the research experience always will be an important element for the companies. About the items of interest when recruiting students with research experience, the companies indicated that oral presentation is the most important element. It is important to mention that the companies possibly offer additional incentive as a bonus, master's degree payments, better salaries, travel expenses paid, tuition reimbursement, and promotions, to the students with research experience that are recruited.

The companies believe that some potential benefits for their companies if they recruit students with research experience, are quality and diversity, ability to solve a problem, applied knowledge, reduced curve learning, efficiency, comprehension of technical topics and skills, and scientific research opportunities. However, the companies considered that both work and research experience, and also, both research experience in and outside of Puerto Rico, are the most important elements when they recruit students. In respect to the importance that the student already has a publication in a peer-reviewed journal is for them neither unimportant nor important.

The disciplines of major importance that the companies believe the UPRM should develop in the students' profile for their benefit are Engineering and Computer Science. However, the companies add to the list mobile and cloud computer, big data, cyber security, software development, accounting and finance, engineering systems, agronomy, Excel and English skills.

Finally, nearly all companies were satisfied with the academic and professional profile of the UPRM students.

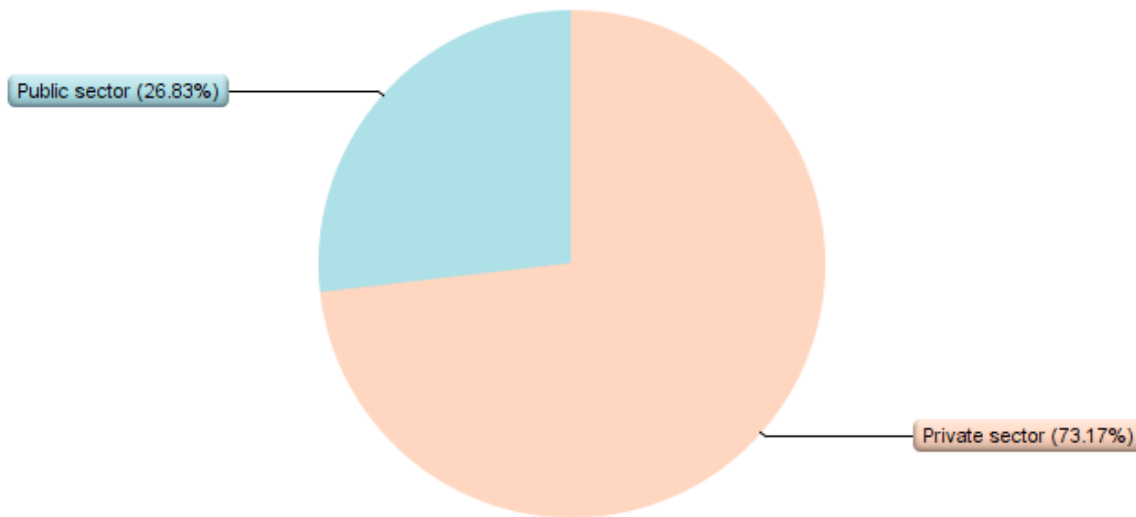
**Learning:**

In general, the companies believed the research experience is an important element in the student's profile. Also, the companies indicated they were satisfied with the academic and professional profile of the students from UPRM, but the companies make many suggestions to improve in the student's profile. These suggestions included, in reference to the development (or enhance) of elements such as cloud computer, big data, cyber security, and software development, to mention a few. English and communication skills are integrated to these improvements also. The results allowed us to put into context of the skills, research experience, research areas, etc. that the companies seek in the students when they are recruited.

This work was developed by Dr. Ubaldo Cordova-Figueroa and Mary Acosta with the auspice of the Research Academy for Faculty and Postdoctoral Fellows ascribed to the Professional Enrichment Center (CEP). Some of the questions of this study were adapted from the URSSA-SALG survey and the Undergraduate Research Survey INQU4105/4106 (as part of the course *Entering Research* Parts I and II

in the Chemical Engineering Department at UPRM) which were based on the tools developed by the University of Wisconsin-Madison from ([salgsite.org](http://salgsite.org)).

## Type of company:

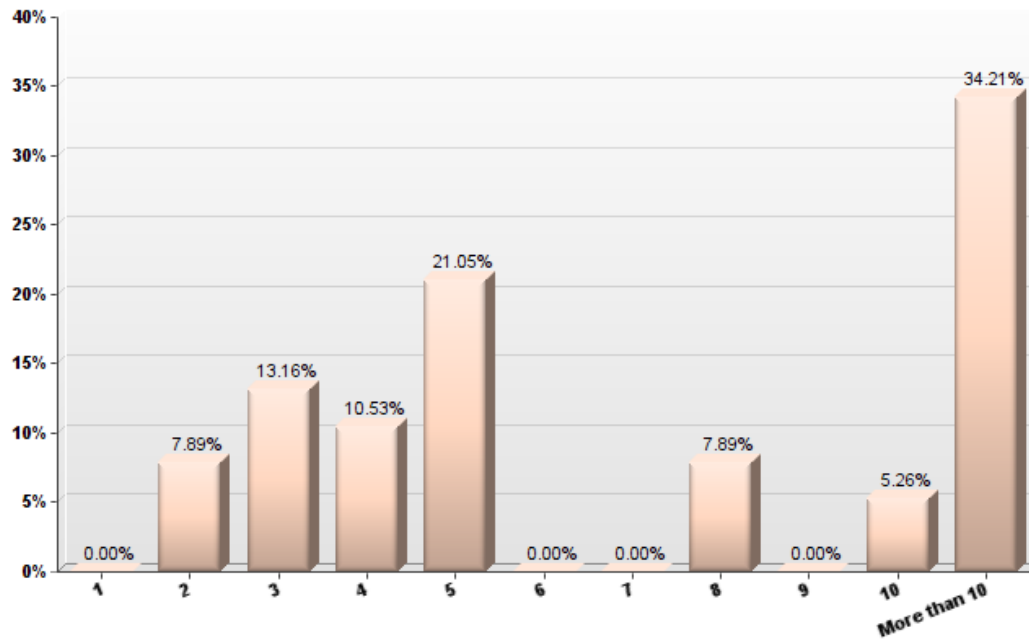


#	Answer	Response	%
1	Private sector	30	73.17%
2	Public sector	11	26.83%
	Total	41	100.00%

Table Q2-1. Summary of the type of company.

Of all the companies who participated in this study, 73.17% correspond to the private sector and 26.83% represent companies of the public sector.

## How many people do you contemplate recruiting at the Job Fair at UPRM?

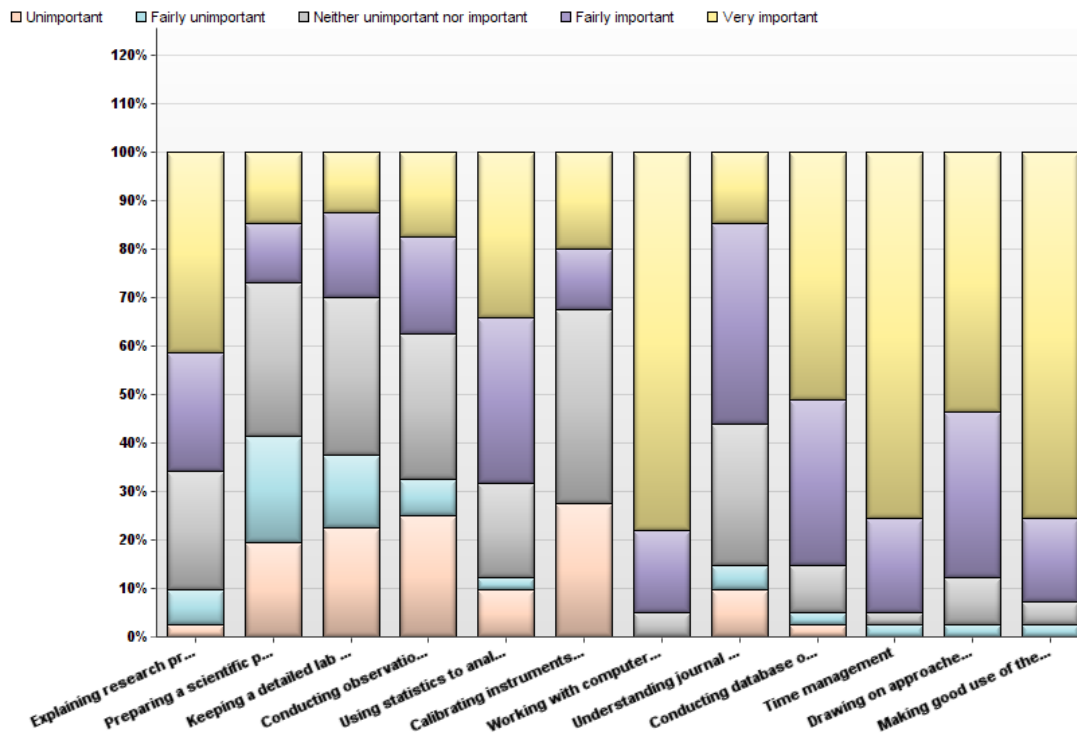
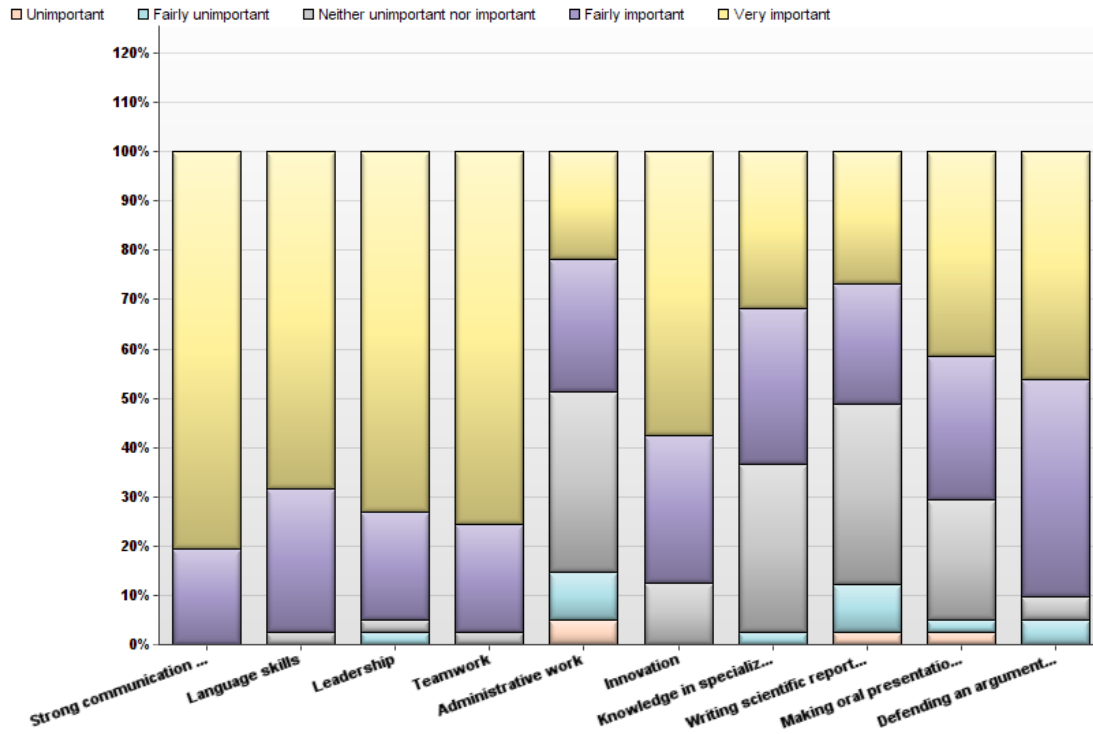


#	Answer	Response	%
1	1	0	0.00%
2	2	3	7.89%
3	3	5	13.16%
4	4	4	10.53%
5	5	8	21.05%
6	6	0	0.00%
7	7	0	0.00%
8	8	3	7.89%
9	9	0	0.00%
10	10	2	5.26%
11	More than 10	13	34.21%
	Total	38	100.00%

Table Q4-1. Summary of the number of students that the companies contemplated recruiting at the UPRM Job Fair.

This study revealed that 34.21 % of the companies contemplated recruiting more than 10 students at the Job Fair at UPRM. To recruit 5 students was the objective of 21.05% of the companies.

Please use the scale to select the skills that your company seeks when recruiting students.



Based on the mean, the skills that the companies seek when recruiting students, arranged in order from most important to least important are the following:

Rank	Skill	Total Responses	Mean
1	Strong communication skills	41	4.8
2	Teamwork	41	4.73
3	Working with computers	41	4.73
4	Time management	41	4.68
5	Language skills	41	4.66
6	Leadership	41	4.66
7	Making good use of the resources available	41	4.66
8	Innovation	40	4.45
9	Drawing on approaches from different fields to solve a problem	41	4.39
10	Defending an argument when asked questions	41	4.32
11	Conducting database or Internet searches	41	4.29
12	Making oral presentations	41	4.05
13	Explaining research projects to people outside the student's field	41	3.95
14	Knowledge in specialized software	41	3.93
15	Using statistics to analyze data	41	3.8
16	Writing scientific reports or papers	41	3.63
17	Administrative work	41	3.51
18	Understanding journal articles	41	3.46
19	Conducting observations in the lab or field	40	2.98
20	Calibrating instruments needed for measurement	40	2.98
21	Keeping a detailed lab notebook	40	2.83
22	Preparing a scientific poster	41	2.8

The companies evaluated the skills that they seek when recruiting students determining that strong communication skills are the most important while the preparations of a scientific poster is the least important.

#	Question	Unimportant	Fairly unimportant	Neither unimportant nor important	Fairly important	Very important	Total Responses	Mean
1	Strong communication skills	0.00%	0.00%	0.00%	19.51%	80.49%	41	4.80
2	Language skills	0.00%	0.00%	2.44%	29.27%	68.29%	41	4.66
3	Leadership	0.00%	2.44%	2.44%	21.95%	73.17%	41	4.66
4	Teamwork	0.00%	0.00%	2.44%	21.95%	75.61%	41	4.73
5	Administrative work	4.88%	9.76%	36.59%	26.83%	21.95%	41	3.51
6	Innovation	0.00%	0.00%	12.50%	30.00%	57.50%	40	4.45
7	Knowledge in specialized software	0.00%	2.44%	34.15%	31.71%	31.71%	41	3.93
8	Writing scientific reports or papers	2.44%	9.76%	36.59%	24.39%	26.83%	41	3.63
9	Making oral presentations	2.44%	2.44%	24.39%	29.27%	41.46%	41	4.05
10	Defending an argument when asked questions	0.00%	4.88%	4.88%	43.90%	46.34%	41	4.32
11	Explaining research projects to people outside the student's field	2.44%	7.32%	24.39%	24.39%	41.46%	41	3.95
12	Preparing a scientific poster	19.51%	21.95%	31.71%	12.20%	14.63%	41	2.80
13	Keeping a detailed lab notebook	22.50%	15.00%	32.50%	17.50%	12.50%	40	2.83
14	Conducting observations in the lab or field	25.00%	7.50%	30.00%	20.00%	17.50%	40	2.98
15	Using statistics to analyze data	9.76%	2.44%	19.51%	34.15%	34.15%	41	3.80
16	Calibrating instruments needed for measurement	27.50%	0.00%	40.00%	12.50%	20.00%	40	2.98
17	Working with computers	0.00%	0.00%	4.88%	17.07%	78.05%	41	4.73
18	Understanding journal articles	9.76%	4.88%	29.27%	41.46%	14.63%	41	3.46
19	Conducting database or Internet searches	2.44%	2.44%	9.76%	34.15%	51.22%	41	4.29
20	Time management	0.00%	2.44%	2.44%	19.51%	75.61%	41	4.68
21	Drawing on approaches from different fields to solve a problem	0.00%	2.44%	9.76%	34.15%	53.66%	41	4.39
22	Making good use of the resources available	0.00%	2.44%	4.88%	17.07%	75.61%	41	4.66

Table Q5-1. Summary of the skills that the companies seek when recruiting students.

Values:

- 1) Unimportant
- 2) Fairly unimportant
- 3) Neither
- 4) Fairly important
- 5) Very important

Statistic	Strong communication skills	Language skills	Leadership	Teamwork	Administrative work	Innovation	Knowledge in specialized software	Writing scientific reports or papers
Min Value	4	3	2	3	1	3	2	1
Max Value	5	5	5	5	5	5	5	5
Mean	4.80	4.66	4.66	4.73	3.51	4.45	3.93	3.63
Variance	0.16	0.28	0.43	0.25	1.21	0.51	0.77	1.14
Standard Deviation	0.40	0.53	0.66	0.50	1.10	0.71	0.88	1.07
Total Responses	41	41	41	41	41	40	41	41

Table Q5-2. Brief summary of statistics for “skills that the companies seek when recruiting students”.

Statistic	Making oral presentations	Defending an argument when asked questions	Explaining research projects to people outside the student's field	Preparing a scientific poster	Keeping a detailed lab notebook	Conducting observations in the lab or field	Using statistics to analyze data
Min Value	1	2	1	1	1	1	1
Max Value	5	5	5	5	5	5	5
Mean	4.05	4.32	3.95	2.80	2.83	2.98	3.80
Variance	1.00	0.62	1.20	1.71	1.74	2.03	1.51
Standard Deviation	1.00	0.79	1.09	1.31	1.32	1.42	1.23
Total Responses	41	41	41	41	40	40	41

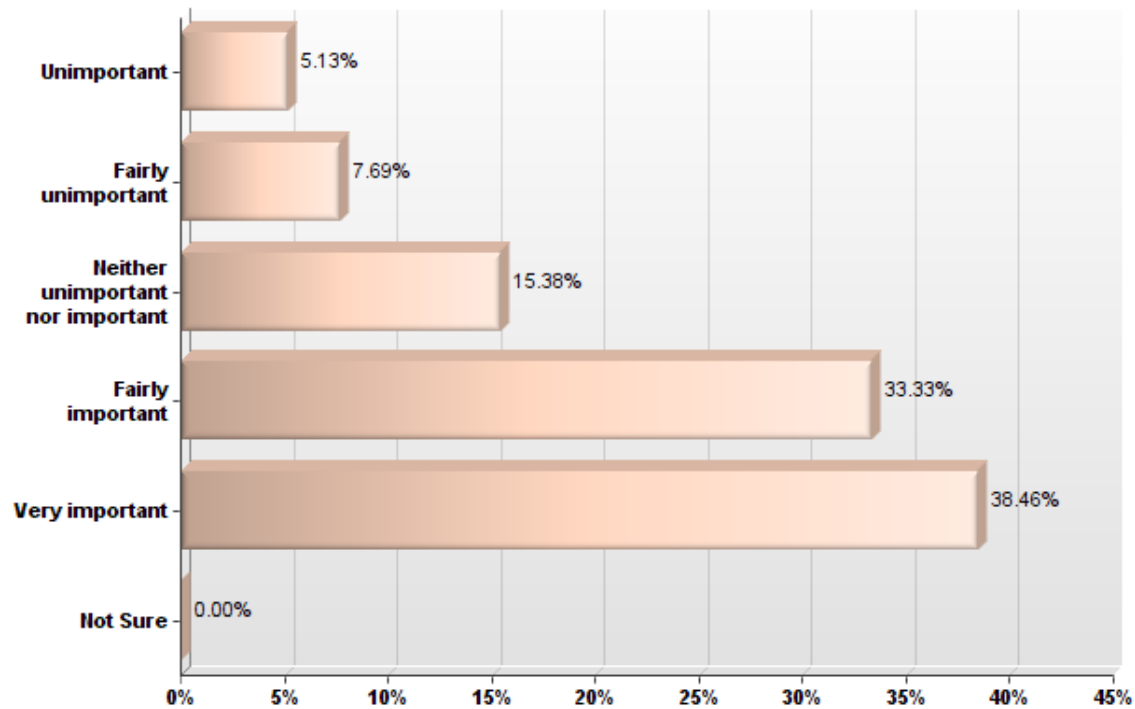
Table Q5-2. Brief summary of statistics for “skills that the companies seek when recruiting students” (continuation).

Statistic	Calibrating instruments needed for measurement	Working with computers	Understanding journal articles	Conducting database or Internet searches	Time management	Drawing on approaches from different fields to solve a problem	Making good use of the resources available
Min Value	1	3	1	1	2	2	2
Max Value	5	5	5	5	5	5	5
Mean	2.98	4.73	3.46	4.29	4.68	4.39	4.66
Variance	2.08	0.30	1.25	0.86	0.42	0.59	0.48
Standard Deviation	1.44	0.55	1.12	0.93	0.65	0.77	0.69
Total Responses	40	41	41	41	41	41	41

Table Q5-2. Brief summary of statistics for “skills that the companies seek when recruiting students” (continuation).



## How important is it for a student to have research experience when recruiting for your company?

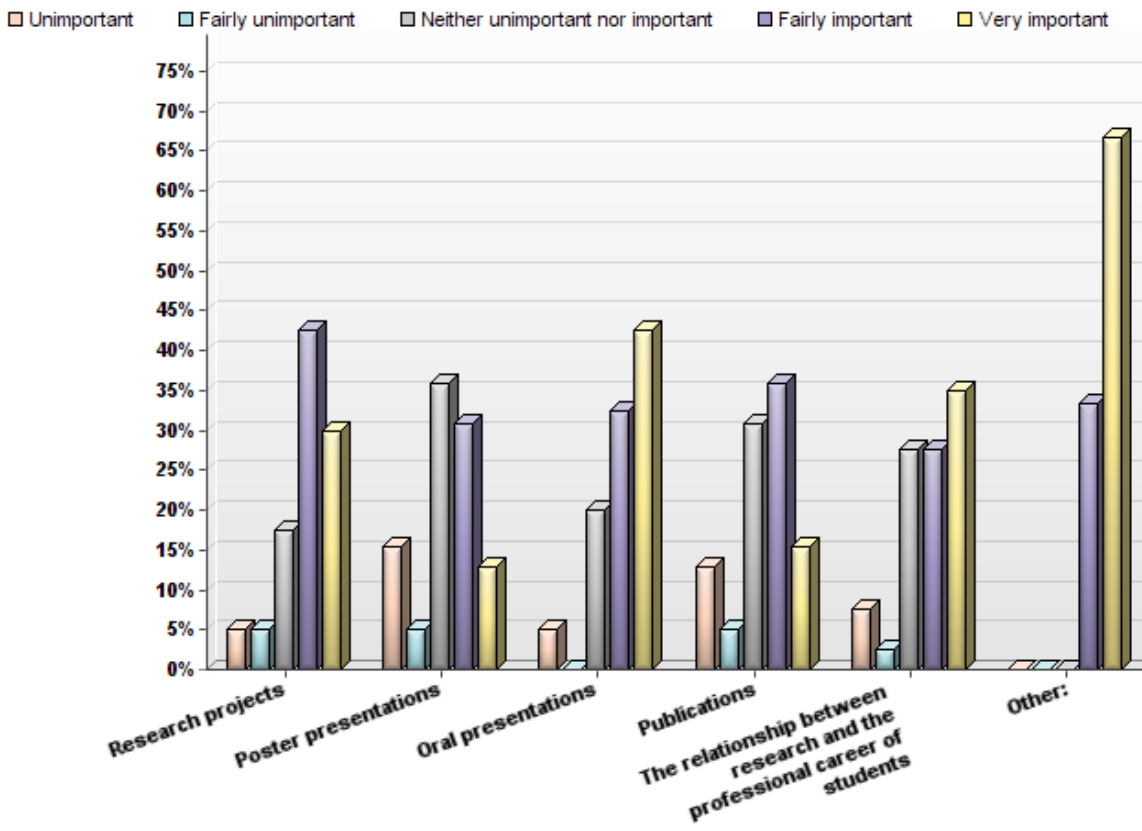


#	Answer	Response	%
1	Unimportant	2	5.13%
2	Fairly unimportant	3	7.69%
3	Neither unimportant nor important	6	15.38%
4	Fairly important	13	33.33%
5	Very important	15	38.46%
6	Not Sure	0	0.00%
	Total	39	100.00%

Table Q6-1. Percentage of each response to “the importance that the student has research experience when recruited by the companies”.

With 71.79%, most of the companies stated that it is important for a student to have research experience when the student is recruited for their company.

Please use the scale to select the items that would be of interest to your company if/when recruiting students with research experience.



To arrange the items of interest for companies in order of most important to least important, regrouping the table Q7-1, it is possible to add together the unimportant and fairly unimportant categories, and add together the fairly important and important categories. Table Q7-2 shows table Q7-1 regrouped.

#	Question	Unimportant	Fairly unimportant	Neither unimportant nor important	Fairly important	Very important	Total Responses	Mean
1	Research projects	5.00%	5.00%	17.50%	42.50%	30.00%	40	3.88
2	Poster presentations	15.38%	5.13%	35.90%	30.77%	12.82%	39	3.21
3	Oral presentations	5.00%	0.00%	20.00%	32.50%	42.50%	40	4.08
4	Publications	12.82%	5.13%	30.77%	35.90%	15.38%	39	3.36
5	The relationship between research and the professional career of students	7.50%	2.50%	27.50%	27.50%	35.00%	40	3.80
6	Other:	0.00%	0.00%	0.00%	33.33%	66.67%	3	4.67

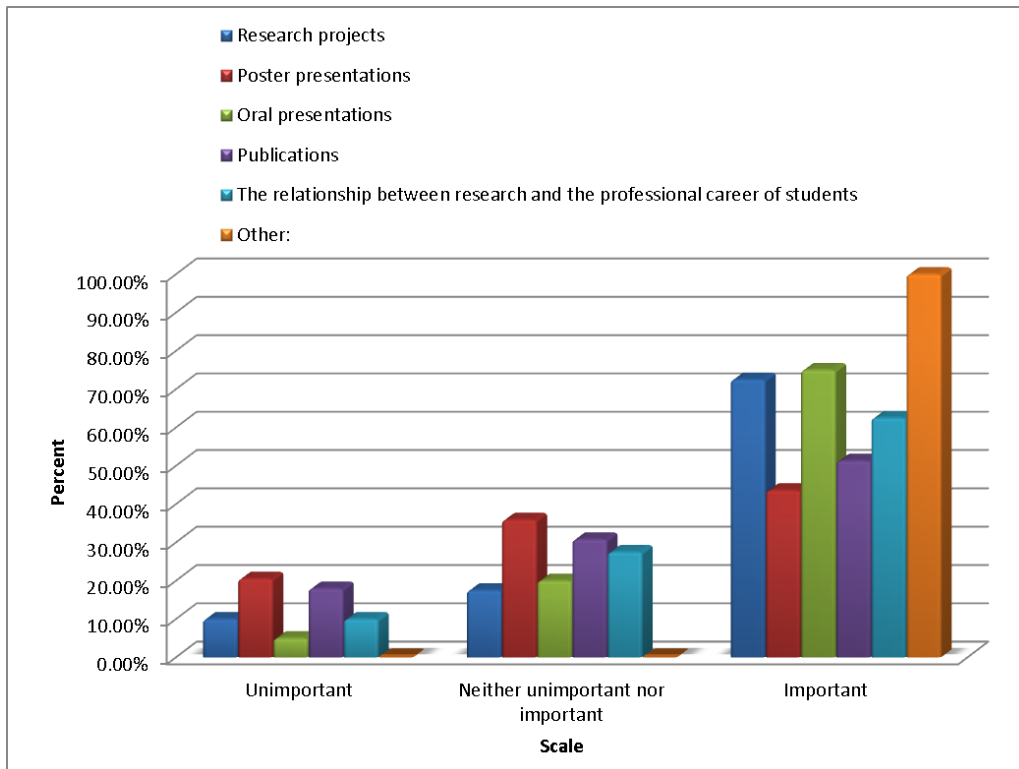
Table Q7-1. Percentage of each response to “the items that would be of interest to the companies if/when recruiting students with research experience”.

The rank of the items (to see Table Q7-2), only considering the five options fixed for this question, was as following: in first place, oral presentations (75.00%); second place, research projects (72.50%); third place, the relationship between research and the professional career of students (62.50%); fourth place, publications (51.28%); fifth place, poster presentations (43.59%). It is important to highlight that the participants added three items to the list: work, operations (business), and sense of urgency expressing such items as very important.

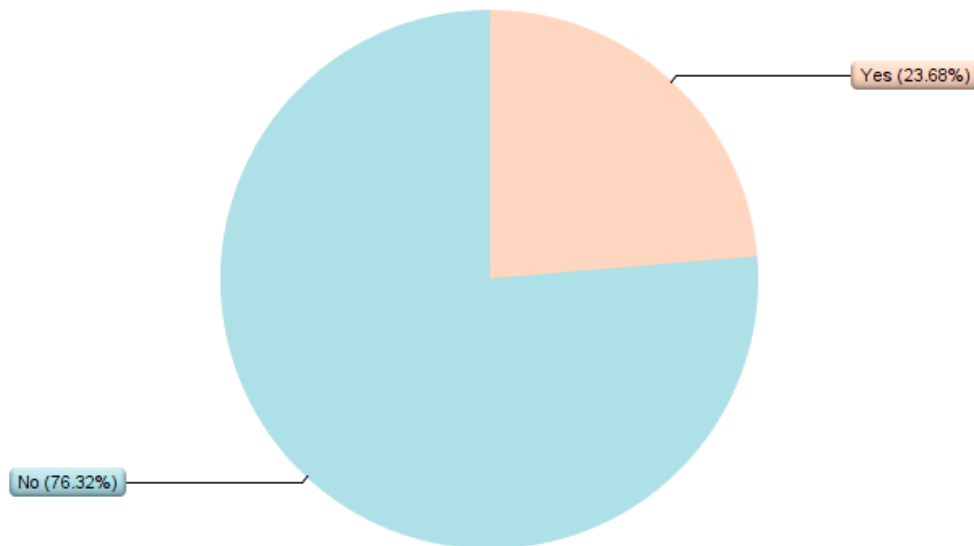
#	Question	Unimportant	Neither unimportant nor important	Important	Total Responses	Mean
1	Research projects	10.00%	17.50%	72.50%	40	3.88
2	Poster presentations	20.51%	35.90%	43.59%	39	3.21
3	Oral presentations	5.00%	20.00%	75.00%	40	4.08
4	Publications	17.95%	30.77%	51.28%	39	3.36
5	The relationship between research and the professional career of students	10.00%	27.50%	62.50%	40	3.8
6	Other:	0.00%	0.00%	100.00%	3	4.67

Table Q7-2. Regrouping table Q7-1.

Regrouped items:



## If a student with research experience is recruited by your company, is it possible for the student to receive additional incentive?



#	Answer	Response	%
1	Yes	9	23.68%
2	No	29	76.32%
	Total	38	100.00%

Table Q8-1. Percentage of each response to the possibility that the student with research experience receives an incentive.

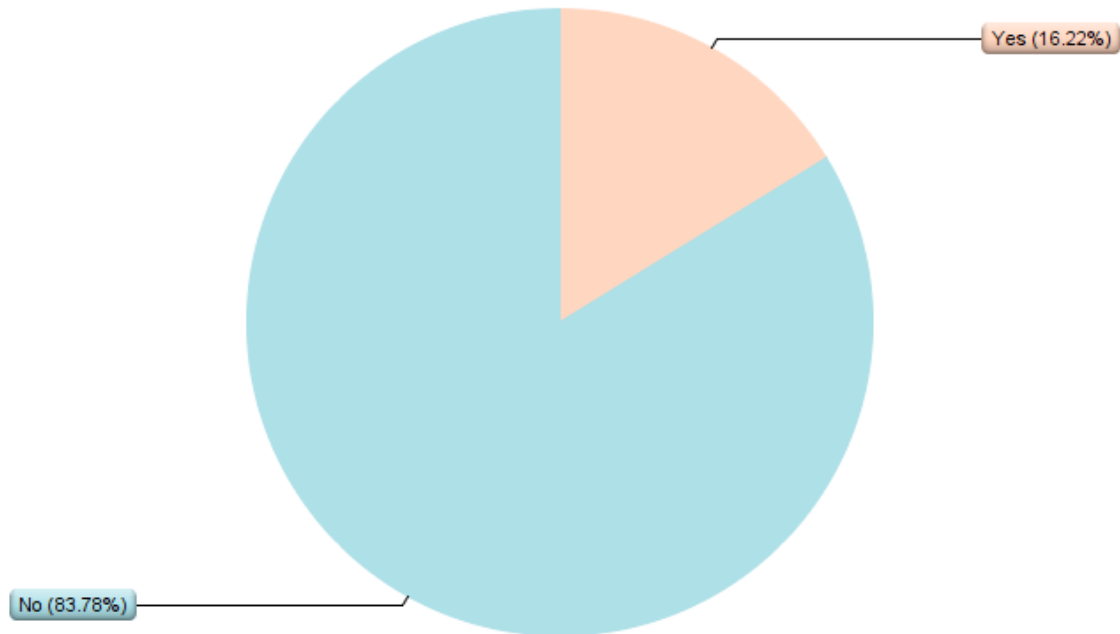
About 23.68% of the participants who responded this question indicated that if a student with research experience is recruited by their companies, possibly that student would receive an additional incentive. These incentives include a bonus, recruitment and master's degree payment, better salary, travel expenses paid and tuition reimbursement, and promotions. In addition, one company indicated that it can be worked out but based on a specific example.

### If your answer is Yes, please specify what kind of incentive:

#### Text Response

- It can be worked out but it's difficult to clarify without a specific example.
- Bonus
- Bonus
- Recruitment, master's degree payment.
- Promotions
- Recruiting Bonus.
- Better salary, travel expenses paid, tuition reimbursement.

## Does your company have a research collaboration program with UPRM?



#	Answer	Response	%
1	Yes	6	16.22%
2	No	31	83.78%
	Total	37	100.00%

Table Q9-1. Percentage of each response to "the collaboration program with UPRM".

About 16.22% of the participants expressed that they have a research collaboration program with UPRM. The other remaining 83.78% do not have such collaboration.

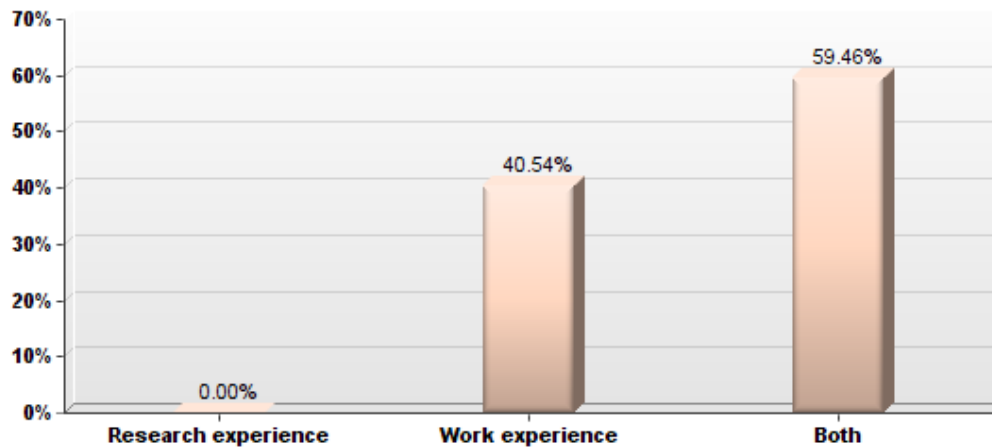
## In your opinion, what would be the potential benefits for your company if it recruits a student with research experience?

### Text Response

- Quality and diversity.
- Ability to solve a problem that requires teamwork & investigation.
- Applied knowledge and/or depends on the specific research (e. s vision).
- It depend the type of research.
- Good defending an argument, oral communication skills.
- Knowledge of investigation.
- Quality of work, student has more time to focus learning on a new topic rather than learning how to do research.
- Our job requires candidate to conduct research or technical area. Having a research experience would greatly allow candidates to do our job.
- Reduces the learning curve. Ready to execute.
- Does analysis well.
- We are a research company, so having research experience ensures they will have the skills necessary to succeed.
- Adds value to the operations or related topics.
- Efficiency.
- Vary.
- Not sure.
- The opportunity to apply the knowledge acquired from classes in a practical environment, which enhances comprehension of technical topics and skills.
- Scientific research opportunities.
- Some experience is always a benefit, since they already know the importance of being committed.
- It helps students grow in their field and often doesn't require previous experience.

The total responses for this question were 19.

## When your company recruits students, what is more important?



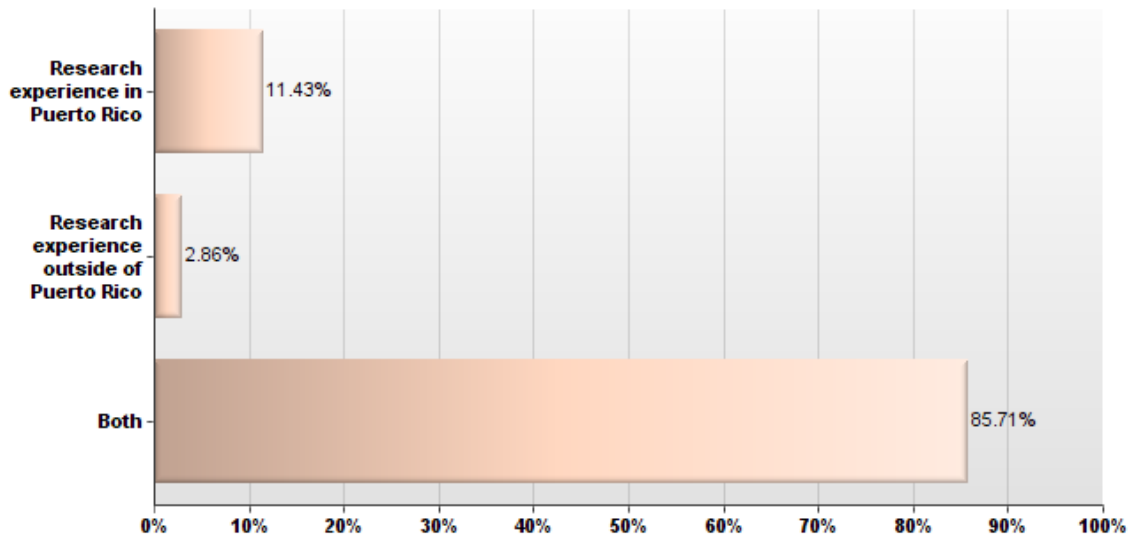
#	Answer	Response	%
1	Research experience	0	0.00%
2	Work experience	15	40.54%
3	Both	22	59.46%
	Total	37	100.00%

Table Q11-1. Percentage of each response to “the importance of the research or work experience when the companies recruit students”.

About 59.46% of the companies who responded this question coincided that the most important elements are both research and work experience.



## When your company recruits students, what is more important about the kind of research experience the student may possess?

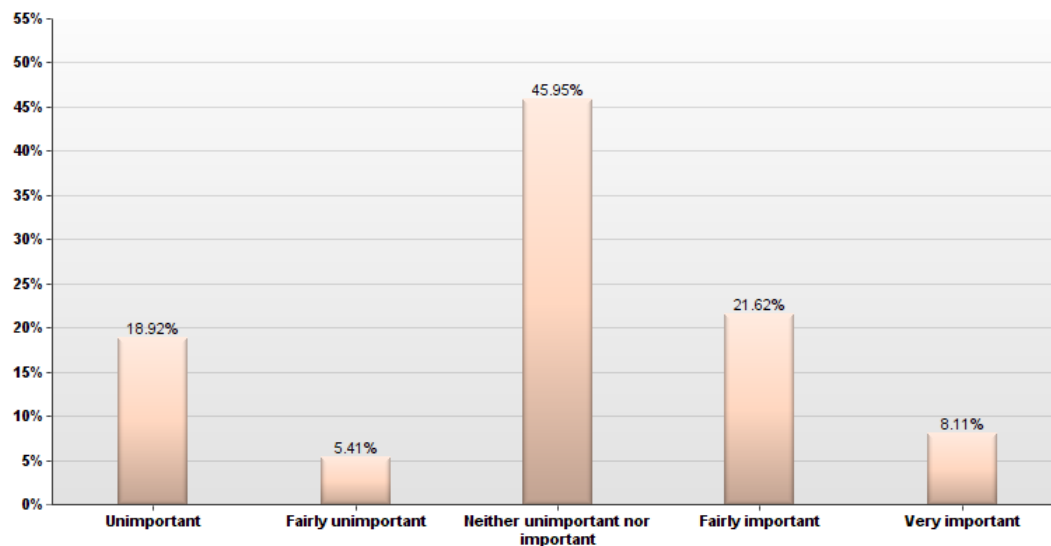


#	Answer	Response	%
1	Research experience in Puerto Rico	4	11.43%
2	Research experience outside of Puerto Rico	1	2.86%
3	Both	30	85.71%
	Total	35	100.00%

Table Q12-1. Percentage of each response to “the importance that the student may possess research experience in or outside of Puerto Rico”.

About 85.71% of those who responded this question indicated that both research experience in and outside of Puerto Rico are very important.

## When your company recruits students, how important is it for the student to already have a publication in a peer-reviewed journal?

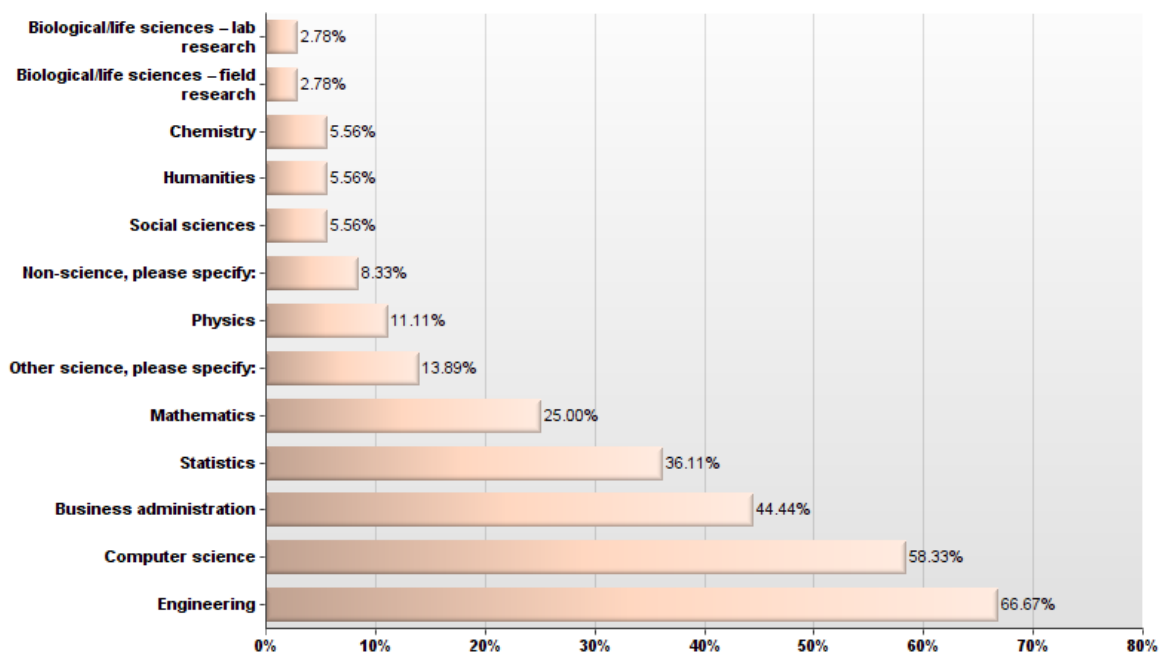


#	Answer	Response	%
1	Unimportant	7	18.92%
2	Fairly unimportant	2	5.41%
3	Neither unimportant nor important	17	45.95%
4	Fairly important	8	21.62%
5	Very important	3	8.11%
	Total	37	100.00%

Table Q13-1. Percentage of each response to “the importance that the student already has a publication in a peer-reviewed journal”.

About 45.95% of respondents assumed neutral stance with respect to the importance for the student to already have a publication in a peer-reviewed journal. The respondents indicated that this issue is neither unimportant nor important.

**What discipline (or research area) do you believe UPRM should develop in order to benefit students who will eventually work for your company? (Mark all that apply)**



#	Answer	Response	%
1	Biological/life sciences – lab research	1	2.78%
2	Biological/life sciences – field research	1	2.78%
3	Mathematics	9	25.00%
4	Physics	4	11.11%
5	Chemistry	2	5.56%
6	Engineering	24	66.67%
7	Computer science	21	58.33%
8	Statistics	13	36.11%
9	Social sciences	2	5.56%
10	Humanities	2	5.56%
11	Business administration	16	44.44%
12	Other science, please specify:	5	13.89%
13	Non-science, please specify:	3	8.33%

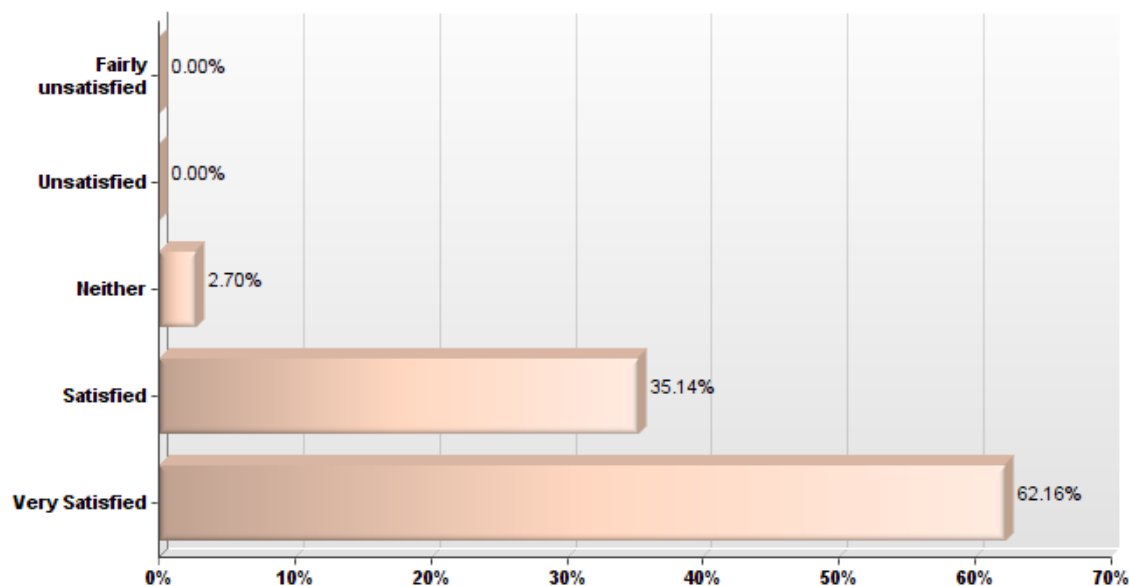
Table Q14-1. Percentage of each response to “discipline (or research area) that the companies believe UPRM should develop in order to benefit students who will eventually work for their companies”.

Other science, please specify:	Non-science, please specify:
Engineering Systems	
Accounting/Finance	
Mobile/Cloud Computing. Big data. Cyber-Security. Center of Excellence in Cyber Security.	
Software	Develop more soft skills
Agronomy	
	Excel
	English

In respect to the discipline or research area that the companies believe UPRM should develop in order to benefit students if eventually they work for their company, the participants coincided that engineering (66.67%) and computer sciences (58.33%) are the most important of all disciplines that they can select. Of less importance were found to be the field research in biological/life sciences, lab research in the biological/life sciences, and social sciences.

The respondents mentioned other sciences that should be considered as potential opportunities of development. These other sciences included: engineering systems, accounting and finance, mobile, cloud computing, big data, cyber-security, software, and agronomy. In addition, the development of more software skills, and knowledge of Excel and English skills were included in the list of non-sciences.

## How satisfied are you with the academic and professional profile of the UPRM students?



#	Answer	Response	%
1	Unsatisfied	0	0.00%
2	Fairly unsatisfied	0	0.00%
3	Neither	1	2.70%
4	Satisfied	13	35.14%
5	Very Satisfied	23	62.16%
	Total	37	100.00%

Table Q15-1. Percentage of each response to “the satisfaction for the companies about the academic and professional profile of the UPRM students”.

### If your response is unsatisfied or fairly unsatisfied, please explain the reasons and recommendations:

#### Text Response

The investigation is important.

English

Finally, it is important to underlay that the companies expressed satisfaction with the academic and professional profile of the UPRM students with a 97.30% (35.14% + 62.16%) of the companies. However, they expressed as a recommendation the improvement of English skills and to continue encouraging the research given that they considered it important.

**Cross Tabulation tables**

Commonly, the generation of comparisons of interest is part of the objectives of the study. Cross tabulation (or contingency table) is used to display the relationship between two or more categorical variables. For this study it is of interest the comparisons of two categorical variables. For example, the following comparisons could be included in the study.

1. Type of company (question two, Q2) and the number of people that the companies contemplate recruiting in the Job Fair at UPRM (Q4).

		How many people do you contemplate recruiting at the Job Fair at UPRM?										Mean	Total	
		1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	8 (8)	9 (9)	10 (10)			More than 10 (11)
Type of company:	Private sector (1)	0 0.00%	3 10.71%	4 14.29%	4 14.29%	7 25.00%	0 0.00%	0 0.00%	1 3.57%	0 0.00%	0 0.00%	9 32.14%	6.29	28 100.00%
	Public sector (2)	0 0.00%	0 0.00%	1 10.00%	0 0.00%	1 10.00%	0 0.00%	0 0.00%	2 20.00%	0 0.00%	2 20.00%	4 40.00%	8.80	10 100.00%
	Total	0 0.00%	3 7.89%	5 13.16%	4 10.53%	8 21.05%	0 0.00%	0 0.00%	3 7.89%	0 0.00%	2 5.26%	13 34.21%	-	38 100.00%

2. Type of company (Q2) and the importance of the work or research experience when the companies recruit students (Q11).

		When your company recruits students, what is more important?			Total
		Research experience (1)	Work experience (2)	Both (3)	
Type of company:	Private sector (1)	0 0.00%	13 48.15%	14 51.85%	27 100.00%
	Public sector (2)	0 0.00%	2 20.00%	8 80.00%	10 100.00%
	Total	0 0.00%	15 40.54%	22 59.46%	37 100.00%

3. The importance of the work or research experience (Q11) and the kind of research experience the student may possess (Q12) when the companies recruit students.

		When your company recruits students, what is more important about the kind of research experience...			Total
		Research experience in Puerto Rico (1)	Research experience outside of Puerto Rico (2)	Both (3)	
When your company recruits students, what is more important?	Research experience (1)	0 0.00%	0 0.00%	0 0.00%	0 100.00%
	Work experience (2)	2 15.38%	1 7.69%	10 76.92%	13 100.00%
	Both (3)	2 9.52%	0 0.00%	19 90.48%	21 100.00%
	Total	4 11.76%	1 2.94%	29 85.29%	34 100.00%

4. Type of company (Q2) and the importance of the kind of research experience the student may possess (Q12) when the companies recruit students.

		When your company recruits students, what is more important about the kind of research experience...			Total
		Research experience in Puerto Rico (1)	Research experience outside of Puerto Rico (2)	Both (3)	
Type of company:	Private sector (1)	3 11.11%	1 3.70%	23 85.19%	27 100.00%
	Public sector (2)	1 12.50%	0 0.00%	7 87.50%	8 100.00%
	Total	4 11.43%	1 2.86%	30 85.71%	35 100.00%

5. Type of company (Q2) and the discipline (or research area) which the companies believe UPRM should develop in order to benefit students who will eventually work for the company (Q14).

		Type of company:		Total
		Private sector (1)	Public sector (2)	
Discipline (or research area)	Biological/life sciences – lab research (1)	1 3.70%	0 0.00%	1 2.78%
	Biological/life sciences – field research (2)	1 3.70%	0 0.00%	1 2.78%
	Mathematics (3)	4 14.81%	5 55.56%	9 25.00%
	Physics (4)	3 11.11%	1 11.11%	4 11.11%
	Chemistry (5)	1 3.70%	1 11.11%	2 5.56%
	Engineering (6)	18 66.67%	6 66.67%	24 66.67%
	Computer science (7)	14 51.85%	7 77.78%	21 58.33%
	Statistics (8)	9 33.33%	4 44.44%	13 36.11%
	Social sciences (9)	1 3.70%	1 11.11%	2 5.56%
	Humanities (10)	1 3.70%	1 11.11%	2 5.56%
	Business administration (11)	12 44.44%	4 44.44%	16 44.44%
	Other science, please specify: (12)	3 11.11%	2 22.22%	5 13.89%
	Non-science, please specify: (13)	3 11.11%	0 0.00%	3 8.33%
	Total	27 100.00%	9 100.00%	36 100.00%

6. Type of company (Q2) and the importance that the student have research experience when recruiting for the company (Q6).

		How important is it for a student to have research experience when recruiting for your company?						Total
		Unimportant	Fairly unimportant	Neither unimportant nor important	Fairly important	Very important	Not Sure	
Type of company:	Private sector	2 7.14%	2 7.14%	5 17.86%	8 28.57%	11 39.29%	0 0.00%	28 100.00%
	Public sector	0 0.00%	1 9.09%	1 9.09%	5 45.45%	4 36.36%	0 0.00%	11 100.00%
	Total	2 5.13%	3 7.69%	6 15.38%	13 33.33%	15 38.46%	0 0.00%	39 100.00%

### Comparing opinions

To compare opinions about some relevant issues of the survey, the responses of two companies (A and B) which participated in both Job Fairs, in September 2014 and February 2015, are presented here. It is possible to extend the comparisons to other questions, but it will depend on the relevance or pertinence for the study.

How many people do you contemplate recruiting at the Job Fair at UPRM?:

Company	Job Fair – September 2014	Job Fair – February 2015
A	8	More than 10
B	Not answered	More than 10

The companies seek very *important skills* when recruiting students:

#### Company A

Job Fair – September 2014	Job Fair – February 2015
Strong communication skills	Strong communication skills
Language skills	Language skills
Leadership	Leadership
Teamwork	Teamwork
Administrative work	Administrative work
Innovation	Innovation
Making oral presentations	Making oral presentations
Defending an argument when asked questions	Defending an argument when asked questions
Explaining research projects to people outside the student's field	Explaining research projects to people outside the student's field
Using statistics to analyze data	Using statistics to analyze data
Calibrating instruments needed for measurement	Working with computers
Working with computers	Understanding journal articles
Understanding journal articles	Conducting database or Internet searches
Conducting database or Internet searches	Time management
Time management	Drawing on approaches from different fields to solve a problem
Making good use of the resources available	Making good use of the resources available



## Company B

Job Fair – September 2014	Job Fair – February 2015
Leadership	Strong communication skills
Teamwork	Language skills
Administrative work	Leadership
Using statistics to analyze data	Teamwork
Calibrating instruments needed for measurement	Administrative work
Working with computers	Innovation
Using statistics to analyze data	Knowledge in specialized software
Calibrating instruments needed for measurement	Writing scientific reports or papers
Working with computers	Making oral presentations
Conducting database or Internet searches	Working with computers
Time management	Time management
Drawing on approaches from different fields to solve a problem	Drawing on approaches from different fields to solve a problem
Making good use of the resources available	Making good use of the resources available

Disciplines (or research areas) that the companies believe UPRM should develop in order to benefit students who will eventually work for their companies:

Company	Job Fair – September 2014	Job Fair – February 2015
A	Statistics Excel (non-science)	Chemistry Engineering Computer science Statistics Business administration
B	Engineering	Biological/life sciences – lab research Chemistry Engineering Computer science

The satisfaction for the companies about the academic and professional profile of the UPRM students:

Company	Job Fair – September 2014	Job Fair – February 2015
A	Very satisfied	Very satisfied
B	Very satisfied	Very satisfied

## Conclusions

In an explorative way, the survey provided a preliminary idea about the importance of undergraduate research experience for job opportunities. Certainly, for future improvements, the

survey must be applied to a significant sample of companies who participate in the Job Fairs. The survey must undergo a statistical validation process and revision; procedures to determine if the survey measure (or assessment) is effective for the objectives for which it was created and then to propose it as a solid study.

The present report gives us an idea of the relevance of the student's skills, the disciplines, and other important information that eventually will be necessary areas to develop in the students, allowing them to find better job opportunities offered by the companies.

### **Recommendations**

It is possible to enhance the survey by first analyzing if all questions will provide the adequate metrics to measure what we want to, or if the questions give relevant and important information, and then to add or delete questions.

Incorporate methods for handling missing data.

A short survey can motivate the participation of more companies who are available during short time intervals at the Job Fair.