

## WOMEN for SCIENCE CENSUS UPDATE: 2014 - 2019

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**INTRODUCTION**

This report presents the findings of the third update of our membership census. It was based on the same five questions that we had used in the last update. The questionnaire was sent out to all focal points in Oct, 2019. In the absence of a completely working secretariat, the form was sent by co-Chair Frances Henry directly with the help of the interim administrator Beatriz Caputto (Academy of Science of Argentina). Most returns came rather more quickly than in preceding years allowing for an earlier and quicker analysis and final report.

Most academies increased their overall membership numbers but a few showed a very slight decline most probably due to local conditions. In a few instances, especially in the large academies such as the U.S. and Canada, membership increased and so did their overall proportion of women. Some academies increased both their numbers and their proportion of women. For example, Venezuela increased their membership only slightly but their proportion of women increased to nearly 6%.

As in earlier years, there was some movement towards increasing the proportions of women in the academies but again the overall disparities between men and women remains. At best, we can hope for a continued movement forwards, but the existing disparities would require huge new numbers of women members to make up for the many years in which they were not acknowledged. Developing quota systems would help reduce the disparities more quickly but are not likely to be introduced by the academies. (We were given to understand, however, that the U.S. academy has been considering a quota system to attain parity, but this idea will probably not be encouraged by the majority of Academies in this region).

Table 1: Number of Women by Academy: By numbers and **proportions**

Academy	Total members						Number of women					
	2014	2015	2016	2017	2018	2019	2014	2015	2016	2017	2018	2019
Argentina	154	157	157	270	272	283	10 (6.5%)	10 (6.4%)	11 (7.0%)	30 (11.1%)	32 (11.8%)	37 (13.1%)
Bolivia	-	-	-	48	49	50	-	-	-	7 (14.6%)	7 (14.3%)	8 (16.0%)
Brazil	500	522	543	539	541	553	64 (12.8%)	68 (13.0%)	73 (13.4%)	78 (14.5%)	81 (15.0%)	86 (15.5%)
Canada	2173	2366	2472	2390	2550	2680	400 (18.4%)	450 (19.0%)	517 (20.9%)	568 (23.8%)	636 (24.9%)	684 (25.5%)
Caribbean	220	234	254	-	-	-	35 (15.9%)	40 (17.1%)	54 (21.3%)	-	-	-
Chile	72	77	80	80	80	80	8 (11.1%)	9 (11.7%)	11 (13.8%)	10 (12.5%)	11 (13.7%)	11 (13.7%)
Columbia	184	198	201	202	211	219	27 (14.7%)	29 (14.6%)	29 (14.4%)	32 (15.8%)	31 (14.7%)	35 (16.0%)
Costa Rica	-	-	-	50	50	56	-	-	-	9 (18.0%)	9 (18.0%)	11 (19.6%)
Cuba	310	313	308	308	375	375	66 (21.3%)	86 (27.5%)	85 (27.6%)	85 (27.6%)	122 (32.5%)	122 (32.5%)
DR	175	170	170	170	172	169	19 (10.9%)	20 (11.8%)	20 (11.8%)	22 (12.9%)	24 (13.9%)	25 (14.8%)
Ecuador	6	31	50	48	48	48	2 (33.3%)	6 (19.4%)	12 (24.0%)	11 (22.9%)	11 (22.9%)	11 (22.9%)
Guatemala	68	73	79	84	88	88	12 (17.6%)	14 (19.2%)	16 (20.3%)	16 (19.0%)	19 (21.6%)	22 (25.0%)
Honduras	22	25	27	28	29	30	8 (36.4%)	8 (32.0%)	8 (29.6%)	8 (28.6%)	8 (27.6%)	9 (30.0%)
Mexico	2570	2657	2708	2779	2832	2890	615 (23.9%)	642 (24.2%)	663 (24.5%)	684 (24.6%)	704 (24.8%)	720 (24.9%)
Nicaragua	33	39	37	37	35	36	6 (18.2%)	6 (15.4%)	10 (27.0%)	10 (27.0%)	10 (28.6%)	10 (27.8%)
Panama	108	124	119	106	101	79	45 (41.7%)	50 (40.3%)	62 (52.1%)	53 (50.0%)	48 (47.5%)	39 (49.4%)
Peru	95	95	94	90	117	108	22 (23.2%)	22 (23.2%)	22 (23.4%)	23 (25.5%)	24 (20.5%)	21 (19.4%)
Uruguay	22	22	25	22	25	25	5 (22.7%)	5 (22.7%)	6 (24.0%)	6 (27.3%)	4 (16.0%)	4 (16.0%)
USA	2277	2305	2336	2344	2369	2407	308 (13.5%)	330 (14.3%)	354 (15.2%)	372 (15.9%)	392 (16.5%)	428 (17.8%)
Venezuela	44	44	44	38	38	42	9 (20.5%)	9 (20.5%)	9 (20.5%)	5 (13.1%)	5 (13.1%)	8 (19.0%)
<b>TOTAL</b>	<b>9033</b>	<b>9452</b>	<b>9704</b>	<b>9633</b>	<b>9982</b>	<b>10218</b>	<b>1661 (18.4%)</b>	<b>1804 (19.1%)</b>	<b>1962 (20.2%)</b>	<b>2029 (21.1%)</b>	<b>2178 (21.9%)</b>	<b>2291 (22.4%)</b>

\*I wish to thank Beatriz Caputto, our interim IANAS administrator for doing the tables and also for adding and revising text.

We also examined the numbers of women that served as presidents and who held positions on the executive committees of their academies during the latest three year period. For the first two years, 16 academies were led by male presidents and only 5 were led by women. In the final year, there were 17 men and one less woman. There are only three academies which have a higher number of women executive members: Cuba, Dominican Republic and the US. (This may merely reflect the larger sizes of their executive councils, although the US had more women than men in 2017 and 2018).

Table 2: Men/Women Presidents/Excutive Governing Board

Academy	Men - Women Presidents						Men - Women Ex. Board					
	2014	2015	2016	2017	2018	2019	2014	2015	2016	2017	2018	2019
Argentina	1 - 0	1 - 0	1 - 0	2 - 0	2 - 0	2 - 0	8 - 1	8 - 2	8 - 2	23 - 7	23 - 7	23 - 7
Bolivia	-	-	-	1 - 0	1 - 0	1 - 0	-	-	-	6 - 0	6 - 0	6 - 0
Brazil	1 - 0	1 - 0	1 - 0	1 - 0	1 - 0	1 - 0	11 - 1	11 - 1	10 - 2	10 - 2	10 - 2	9 - 3
Canada	1 - 0	0 - 1	0 - 1	0 - 1	1 - 0	1 - 0	5 - 3	5 - 3	4 - 4	6 - 3	6 - 3	6 - 3
Caribbean	1 - 0	1 - 0	1 - 0	1 - 0	1 - 0	1 - 0	3 - 2	3 - 2	3 - 2	3 - 2	3 - 2	3 - 2
Chile	1 - 0	1 - 0	0 - 1	0 - 1	0 - 1	0 - 1	5 - 1	5 - 1	5 - 1	3 - 1	3 - 1	3 - 1
Columbia	1 - 0	1 - 0	1 - 0	1 - 0	1 - 0	1 - 0	4 - 2	4 - 2	4 - 1	7 - 1	7 - 1	7 - 1
Costa Rica	1 - 0	1 - 0	1 - 0	1 - 0	1 - 0	1 - 0	6 - 1	6 - 1	6 - 1	6 - 1	6 - 1	5 - 2
Cuba	1 - 0	1 - 0	1 - 0	1 - 0	1 - 0	1 - 0	6 - 4	6 - 4	5 - 5	5 - 5	4 - 6	4 - 6
DR	1 - 0	1 - 0	1 - 0	1 - 0	1 - 0	1 - 0	12 - 5	12 - 5	12 - 5	13 - 4	13 - 4	11 - 6
Ecuador	1 - 0	1 - 0	1 - 0	1 - 0	1 - 0	1 - 0	3 - 2	3 - 3	6 - 0	3 - 3	3 - 3	4 - 2
Guatemala	1 - 0	0 - 1	0 - 1	0 - 1	0 - 1	1 - 0	6 - 0	5 - 2	5 - 2	5 - 1	5 - 1	3 - 3
Honduras	1 - 0	1 - 0	1 - 0	1 - 0	1 - 0	1 - 0	3 - 1	3 - 1	3 - 1	3 - 1	3 - 1	3 - 1
Mexico	1 - 0	1 - 0	1 - 0	1 - 0	1 - 0	1 - 0	2 - 2	2 - 2	2 - 2	2 - 2	2 - 2	2 - 2
Nicaragua	1 - 0	1 - 0	1 - 0	1 - 0	0 - 1	0 - 1	4 - 2	4 - 2	5 - 2	4 - 2	4 - 2	4 - 2
Panama	1 - 0	1 - 0	1 - 0	1 - 0	1 - 0	1 - 0	4 - 2	4 - 2	4 - 2	3 - 3	3 - 3	3 - 3
Peru	1 - 0	1 - 0	1 - 0	1 - 0	1 - 0	1 - 0	5 - 1	4 - 2	4 - 2	4 - 2	3 - 3	3 - 3
Uruguay	1 - 0	1 - 0	1 - 0	1 - 0	1 - 0	1 - 0	9 - 1	9 - 1	7 - 3	6 - 2	6 - 2	6 - 2
USA	1 - 0	1 - 0	0 - 1	0 - 1	0 - 1	0 - 1	8 - 8	8 - 8	6 - 10	6 - 10	5 - 11	6 - 10
Venezuela	1 - 0	1 - 0	1 - 0	0 - 1	0 - 1	0 - 1	5 - 1	3 - 3	3 - 3	3 - 2	3 - 2	2 - 3
<b>TOTAL</b>	<b>19 - 0</b>	<b>17 - 2</b>	<b>16 - 3</b>	<b>16 - 5</b>	<b>16 - 5</b>	<b>17 - 4</b>	<b>109 - 40</b>	<b>105 - 47</b>	<b>102 - 50</b>	<b>121 - 54</b>	<b>118 - 57</b>	<b>113 - 62</b>

## Summary of the 2014-2019 Women for Science Surveys

The diversity of political and economic environments, together with different traditions and ages of the academies of the IANAS WfS program is also reflected in the initiatives each academy undertakes to improve the number of women members of these academies. On one end of the spectrum are academies such as those from the US or Canada that are more than 150 years old and began their attempts to increase numbers of women as much as twenty years ago and thus have a longer tradition of recognizing the importance of women in leadership roles both in science and technology and in these academies. On the other end are much more recently founded academies with 10 or less years since their foundation that are in an earlier stage of organization regarding the incorporation of women into their academies.

With more or less impetus, all continue doing efforts to improve the ratio women/man as academy members and also to improve the number of women in leadership positions. One of the initiatives mentioned frequently is the explicit policy to identify good female candidates and encourage their proposal as academy members. Other initiatives include the institution of awards exclusively for women or the implementation of different requirements such as age limit, for female scientists. In addition, some academies have founded commissions or organizations of Women in Science to promote the participation of women in all stages of their careers, in academies and research institutions of their country. Finally, some academies have organized scientific meetings with an important proportion of female speakers or meetings specifically organized to discuss the empowerment of women in science.

Table 3 contains the comparison of the percentages of the proportion of women/total members, presidents and members of the EC since 2014 up to 2019. It can be observed that even if the situation is far from being solved, the proportions are steadily improving. However, this improvement is not the same for all academies; for example, most Latin American countries have had no women Presidents in the history of their academies but a few, (as well as Canada and the US) have had at least one woman president independently of the age of the academy. Argentina has two academies that are 140-150 years old yet neither has had a women President in their history.

Table 3

	2014	2015	2016	2017	2018	2019
W/total members	18.4%	19.1%	20.2%	21.1%	21.8%	22.4%
W/all Presidents	0	10.5%	21.0%	23.8%	23.8%	19.0%
W/total EC members	26.8%	30.9%	32.9%	30.9%	32.6%	35.4%

## **Academy's Most Successful Initiatives to Improve the Number of Women Members**

### **ARGENTINA:**

ANC: This year the Academy set up a new Ad hoc Advisory Commission (Women for Science) specially devoted to promoting the participation of women in all stages of their career, in the different activities of the National Academy of Science of Argentina and of the research institutions of our country.

ANCEFN: The main initiative is to encourage members to propose women and to promote special activities led by women scientists.

### **BOLIVIA:**

Among the initiatives is the creation by the Bolivian science academy of the Marie Curie Award since 2013. With this award it has spread the effort carried out by our Academy in recognizing the trajectory of women scientists. The postulation has been maintained since its creation and this consolidates our role in motivating and promoting the scientific advance generated by female scientists in various areas of knowledge.

Also, the plenary of the Academy has approved the incorporation of two more women in the last three years, adding to the two scientists who later became passive academics and one of them has passed away. Our goal is to incorporate scientists who excel in various scientific areas.

### **BRAZIL:**

The actions developed by the Academy regarding gender equity aims at enhancing the participation of women in S&T careers, and increasing the awareness of society, the scientific community, S&T institutions and governmental agencies on the importance of promoting a more favorable environment for the participation of women in the areas of S&T in Brazil. Besides the L'Oréal-UNESCO-ABC for Women in Science Prize, the Academy sporadically organizes meetings with sessions where the empowerment of women in science is discussed. Gender balance is a concern in the meetings organized by the Academy. The election of women to the Academy is stimulated, although there is no quota system. One positive outcome of this awareness is that in 2019 our main annual meeting had 50% of female speakers and in the last election of new members, to be inducted in 2020, 50% of the elected are women.

### **CANADA:**

In 2014 the RSC created the RSC College of New Scholars, <https://rsc-src.ca/en/college-members>

### **CHILE:**

The 2019 election, in which we will try to incorporate a woman as a numbered member to complete the 36 members, was postponed to March 2020 due to the current crisis in our country.

### **COLOMBIA:**

In our academy, as a rule, in all events the total number of members is presented and compared with the number of women to emphasize the gender gap.

**COSTA RICA:**

There have been no initiatives or affirmative actions to increase the number of women in the Academy. What we are now proposing, which we hope might have gender gap reduction effects in the long term, is the organization of a workshop on gender gap in science and technology for August 2020. It will include two main themes: 1. Studies on the gender gap in science and technology and contributing factors; and 2. Evidence-based strategies, policies and actions to diminish the gender gap in STEM.

**CUBA:**

The foundation of the Commission of Women in Sciences and National Chapter of Organization Women in Science for Developing World (OWSD) in 2001 for promotion, stimulation and monitoring the presence of Women in Sciences in the Membership, in the Executive board, in the Sections and Commissions and all the internal activities of the Academy and in the country in general.

The Cuban Academy held a very wide and profound process of elections for the period 2018-2024 and in all the steps of the process we call the attention to nominate and elect relevant and eminent women in the universities, in scientific institutions.

We have gained in experiences, in Gender theory and concepts, in the integration with the Cuban scientific community, helping to disseminate many initiatives all over the country. Nowadays our Academic women leaders in Sciences are well recognized and called to present the situation of Women in Sciences in different national and international Forums and Conferences.

**DOMINICAN REPUBLIC:**

Now we are involved in doing conference and meetings to discuss the problems around the role of women in science in our country. Now we choose our new president who has a lot more participation of women.

**GUATEMALA:**

Try to promote and encourage the entry of women scientists.

**HONDURAS:**

Invitations to get incorporated.

**MEXICO:**

The Mexican Academy of Sciences is committed to the ideal of equal opportunities for women.

The MAS calls to 5 awards for young researchers. Two of them exclusively for women (L'ORÉAL-UNESCO-AMC Scholarships for Women in Science and AMC-CCC-CONACYT Scholarships for Women in Social Sciences and Humanities) and three of them have different requirements for women regarding the age limit to participate as a candidate

**L'ORÉAL-UNESCO-AMC Scholarships for Women in Science**

In 2007, the Mexican Academy of Sciences, L'Oréal-Mexico and the Mexican Commission of Cooperation with UNESCO (CONALMEX), instituted the L'Oréal-UNESCO-AMC Grants for Women in Science to promote women's participation in

science to undertake advanced scientific studies at Mexican universities or other prestigious institutions in the areas of exact and natural sciences, engineering and technology. Participants must be under 40 and have completed their doctoral degrees in the past few years.

**AMC-CCC-CONACYT Scholarships for Women in Social Sciences and Humanities**

In 2010, the Mexican Academy of Sciences, the National Council of Science and Technology, and the Science Advisory Board established the "Scholarships for Women in the Social Sciences and Humanities" to promote women in these areas and encourage young Mexican women scientists to contribute to knowledge generation. Two scholarships are awarded annually, one in the Social Sciences and another in Humanities. Participants must be under 40 and recently have completed their doctoral dissertations. These scholarships are intended to enable recipients to conduct scientific research at the postdoctoral level at Mexican institutions.

**NICARAGUA:**

Our policy is explicit of seeking the incorporation of a greater number of women scientists to our Academy. This policy allowed 4 women scientists to be incorporated in the last few years. And it also allowed their incorporation to directive positions. However, the political crisis that our country is going through has prevented us from incorporating new members.

**PANAMA:**

We programmed meetings in other cities of the Country, at Universities, with Academic Women as speakers.

**PERU:**

The most successful initiative is the holding of Women's Empowerment Workshops, which are conducted periodically by the Peruvian Focal Point of the Women for Science Program (IANAS).

Since the first national version, which brought together academic women from a large part of the Peruvian territory, held in February 2015, four other decentralized workshops have continued in different cities in the north, centre, south and east of the country (Trujillo, in the Northern Zone, in May 2015; Pucallpa, in the Eastern Zone, in August 2015; Arequipa, in the Southern Zone, in December 2015; and Huancayo, in the Central Zone, in November 2016).

The last workshop, held in July 2019, was attended by the focal points of the Women for Science Program of Peru, Ecuador, Bolivia and Chile; ten academics from provinces registered in the National Registry of Science, Technology and Technological Innovation (RENACYT) of the National Council for Science, Technology and Technological Innovation (CONCYTEC) also participated. Finally, it is mentioned that 126 academics from the different regions of the country attended, previously registered in a virtual database.

For more information, please visit: <http://www.zonacaral.gob.pe/mujeresparalaciencia/>

**URUGUAY:**

Specifically explore and identify good female candidates and actively favor their incorporation

**US:**

A long-standing, Academy-wide focus on the importance of diversity aided by Temporary Nominating Groups charged with identifying a diverse set of candidates for membership.

**VENEZUELA:**

To identify and incorporate, first as Corresponding Members and later on as Academicians, women with relevant scientific contributions committed to participate and support the Academy Programs.