



# Campus Verde

## Report 2017

### Ten Years!

This report includes the activities by the Campus Verde Initiative, which is constituted mainly by students guided by faculty and personnel from UPRM, but also includes several collaborations with members of the community.

Presented by Dr. Sandra Cruz-Pol  
Campus Verde Director  
**Agosto 2016 – June 2017**

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**Campus Verde** (CV or in English “Green Campus”) is an initiative founded in the fall of 2007 at University of Puerto Rico – Mayagüez Campus. It’s coordinated by Dr. Sandra Cruz-Pol with participation from students, faculty and campus personnel who strive to raise awareness of the prevailing importance of living in harmony with the planet, in order to reduce our impact to the ecosystem and reduce global warming emission and climate change.

CV coordinates activities and efforts directed toward education and the implementation of projects in eco-friendly and sustainable issues. We work with collaboration with various student organizations, campus departments and offices, and off-campus community organizations and offices. (Campus Verde also has its own student organization called Campus Verde Students). We provide annual training to dozens of students/faculties, so they can continue to offer lectures and workshops to the community both here or wherever they go to work. Thus, we reach thousands of people annually all over the island and beyond, including people from Colombia, Argentina, Hawaii, E.U. and Mexico who have indicated that we use our resources downloadable freely from our web.

Examples of our education and outreach activities are annual Symposia with experts from multiple disciplines such as **renewable energy, organic farming, biofuels, remote sensing of the atmosphere, e-waste, green transportation, political aspects of climate change, green architecture, green economics, hydroponics, vegetarian food, ecological insecticides**, among others. In addition, we organize information booths at fairs, climate change forums, eco-films, eco-fair, educational campaigns, and exhibitions during Earth Week in the EcoSolar House. We use online surveys, and pre/post-tests to assess impact of our activities. We also provide presentations to schools and conventions all over the island, reaching over 5,000 people per year through conferences and visits. We also maintain very active publications on Social Medias as *CampusVerde* and *CampusVerdeUPRM* in *Facebook*, *SnapChat* and *Twitter*. See more information and photos in our annuals reports. (2007-2016) <http://campusverde.uprm.edu/>

We have organized activities in collaboration with other students Association such as tree planting, beach cleanups, eco-eating fairs, recycling day, waterfalls cleanups, and bicycle marathons, exhibitions with friendly products, among others.

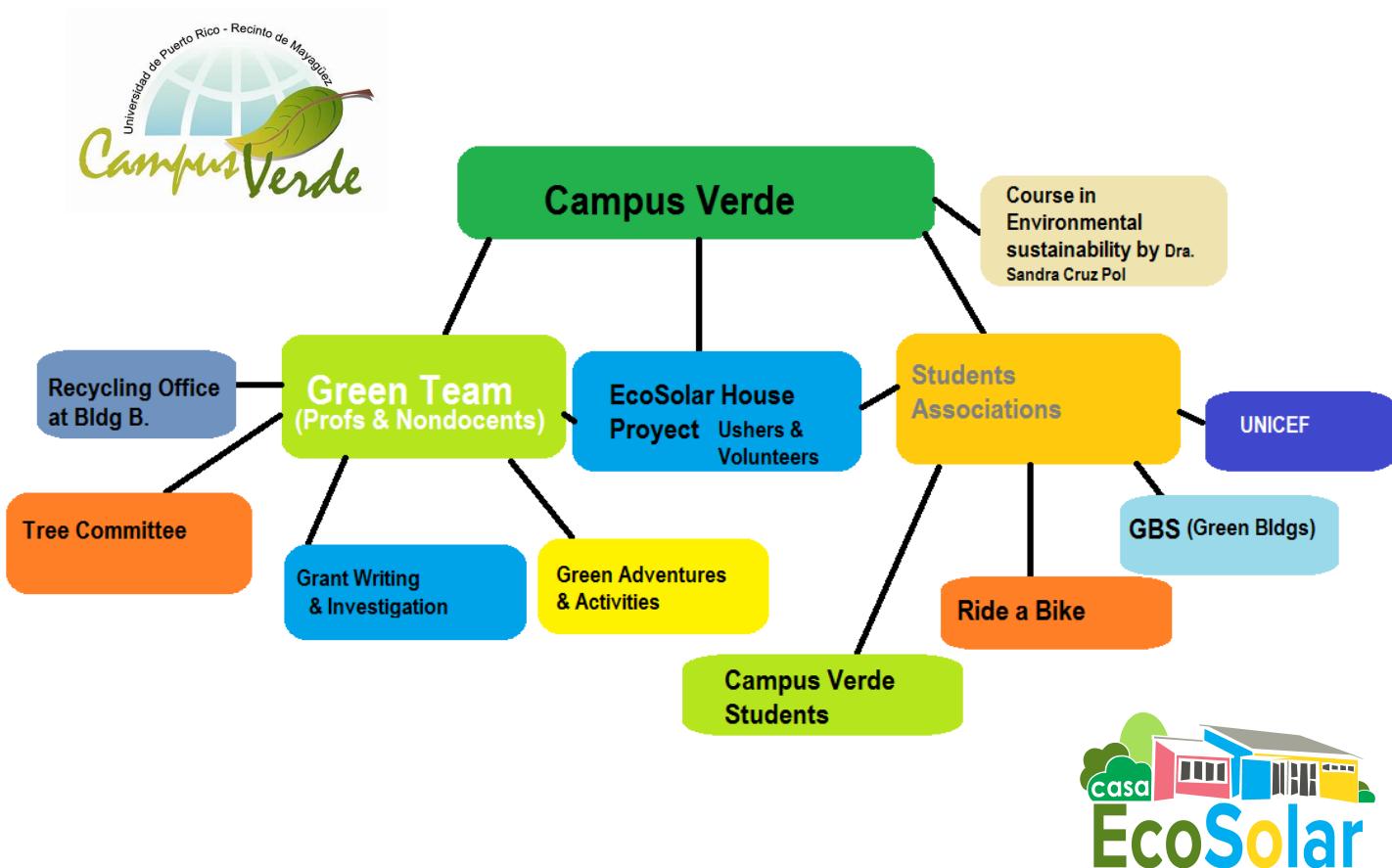
In terms of implementation, we meet regularly with the Campus Administration to introduce eco-friendly alternative in transportation, energy conservation and efficiency measures, etc. which result in substantial cost savings and lower emissions of greenhouse gases and toxic to the environment. In terms of prevention, we have an eco- health and numerous activities to raise awareness about the positive impact of a healthy diet, not smoking, use of bicycles, use of ecofriendly cleaning products and personal care products, and how all also benefits the planet. We develop and provide free materials online in our main web page such as posters, fact sheets and presentations.

## I. Mission Statement

Campus Verde strives to integrate environmental knowledge into all relevant disciplines; improve environmental studies course offerings as the new Environmental Sustainability course (INTD 3357); provide opportunities for students to study campus and local environmental problems; conduct environmental audits of its practices; promote environmentally responsible purchasing policies; reduce campus waste; maximize energy efficiency; make environmental sustainability a top priority in land-use, transportation, and building planning; establish a student environmental center; and support students who seek environmentally responsible careers.

## II. Campus Verde Structure

Located at Sánchez Hidalgo Building, office SH-106, Campus Verde organization includes the Green Team composed by professors and UPRM personnel, the EcoSolar House Committee of students and professors and the Tree Committee with its main mission is to protect campus green areas. The Green Adventures Leaders, coordinate activities like kayaking, surfing and beach cleanups, among others. We provide education and outreach assistance to the Recycling Program located at *Edificio B* (office 217). The student Associations under Campus Verde are *Ride a Bike*, *UNICEF*, *Campus Verde Students (CVS)* and *Green Buildings and Sustainability (GBS)*.



**Figure 1:** Campus Verde structure: Green team is composed of UPRM personnel while Students Groups is composed mainly by students with personnel/faculty advisors.

### III. Green Adventures

During this academic year, Campus Verde continued to grow thanks the Committees and the Green Team with Dr. Sandra Cruz Pol, as Director, Dr. José Colom Ustáriz as coordinator of projects in the Eco Solar house, Jorge Bencosme as green leader and Counselor, and Yamitza Gaztambide as Administrative Assistant and collaborator for the Web page maintenance. Everyone bring many ideas to the program and collaboration in the projects and activities. We are also very grateful to the support of Efraín Morales, from the UPRM Computer Information Technology (CTI) of the administration of the page of *Eventos Verdes-UPRM*.

The screenshot shows the official website of the Recinto Universitario de Mayagüez (RUM) at the top, featuring the RUM logo and navigation links for mi portal, admisiones, académico, administración, estudiantes, investigación, biblioteca, servicios, deportes, buscar, and más... Social media icons for Facebook, Twitter, YouTube, and Print are also present.

The main content area is titled "GREEN Activities | Student & Leadership Development". It features a "Recommend" button indicating 92 recommendations, followed by a horizontal menu bar with links to Green Activities, Eco Cine, Kayaks, Biking, Eventos Pasados, UNICEF, CV Website, Facebook, and Twitter.

Below the menu is a banner with five activity icons: "KAYAKS" (a kayak on water), "HIKE" (people walking in a forest), "Ride a Bike!" (a person riding a bicycle), and the "Campus Verde" logo (a globe with a leaf). A decorative blue and green swirl pattern is on the right side of the banner.

The text below the banner describes outdoor activities offered by Campus Verde, mentioning kayaking, snorkeling, hiking, and cycling. It specifies that kayaking will primarily take place in La Parguera, while other activities like hiking can occur at various locations. Safety guidelines are provided, including the use of helmets and life jackets. Clothing requirements and sun protection tips are also mentioned.

An important note states: "Important: We will try to point out activities which are strenuous. In any case, you will be getting a lot of exercise, so you should be in reasonably good condition to attend any of the trips."

A sidebar on the left indicates the date as "Dic. 23" and the section as "Membresía Verde". A question "¿Estás interesado en unirte al movimiento Verde Colegial?" is posed, followed by a brief description of the movement's goals and opportunities.

At the bottom of the page, there is a decorative row of green leaves.

Figure 2. . The Green Adventures webpage designed by Efrain Morales, can be found by clicking *Próximos Eventos* on Campus Verde web (<http://campusverde.uprm.edu>), or directly at <http://www.uprm.edu/eventosverdes>. This is where students register to all sort of eco-events.

We have recruited many people to serve as leaders of these green trips whose main purpose is to give the student body and the community an opportunity to appreciate nature. Most activities on this page are free but some have for a modest (no reimbursable) donation which go directly to CV account and serve to pay for new equipment or replacement of lost or old equipment, materials, snacks for some activities and the like.



So, thank you all for your donations!

## Green Nature Adventure Leaders:

Kayaking	Cycling	Surfing	Clean Ups and Recycling
Rolf-Martin Vieten	Jorge		Prof. Carmen Castañeyra,
Jashira Torres	Bencosme		Dr. Sandra Cruz Pol,
Héctor Quiñones	Luis Rivera	Miguel Canals	Luz Celeste Guzmán
Miguel Figuerola	Malavé	Ramse Morales	Eduardo Julian Irizarry
<u>Joel Mercado</u>			Angel Falú
<u>Steve Tamar</u>			Angel Rodríguez Ortolaza

Figure 3. Leaders for the several types of new Green Adventure trips offered by Campus Verde through our new web *Eventos Verdes*.



## IV. Green Team

The Green Team with expertise in several areas related to sustainability, including UPRM personnel and faculty with expertise in **renewable energy, organic agriculture, etymology and organic pesticides, green chemistry, climate change outreach, organic apiculture, biodiversity, and sustainable construction, among others**. A very prestigious green architect joined the Green Team as collaborator from outside UPRM, Dr. Fernando Abruña, who was previously president and founder of (*US Green Building Council*) USGBC Caribbean Chapter and professor at UPR-RP. He collaborated on the integration of ecofriendly and architectural ideas in order to present the **Solar Eco House** as a sustainable housing type

Our intention with the Green Team, is to leverage the talent from human resources already found within UPRM by asking each Green Team member to organize 1 or 2 activities per year within their field that can benefit our academic community and even our general community. Additional contact information can be found at: <http://campusverde.uprm.edu/contact.html>.

## V. Eco Solar House

Eco-Solar House serves as a platform for research and education to develop new ideas and an opportunity to the community to learn how to live in harmony with our planet. EcoSolar House is a showcase, which serves as a research laboratory for professors and students in areas focused on sustainable technology. This housing showcase provides experiences about sustainability, environment, green technologies and conservation practices for academic and general community. These skills apply sustainable technology in

the house, with the photovoltaic system, water collection systems, green building materials and practical training with workshops and training with ecological foundations.

The ecological remodeling of the House transformed it into a model of sustainable housing. The term is used to describe eco ideas and initiatives that educate on how to responsibly manage the planet's resources, so that persist for future generations.



- Paint **Master Paint EcoPure** with cero V.O.C emissions.
- Special treatment reflective in ceiling to lower the internal temperature of the house.
- Natural material as **linoleum floor**, instead of vinyl.
- LED lights - Low consumption.
- Photovoltaic Solar System from **Maximo Solar Industries**.
- Landscaped garden grocery.
- Aquaponics system.
- Apparatus to minimize water consumption at the house.
- System collected rainwater to water the plants.
- Library of sustainable material.
- Workshops for eco-friendly cleaning products and insecticides with essential oils.
- Workshops in Ecological Kitchen & vegetarian recipes.



The Solar House was built in 2005 as part of the Solar Decathlon competition in Washington D.C. In 2008, it was inherited by Green Campus in order to restore it to make it a model of sustainable housing and an interactive museum. Beginning in the year 2015 was completed with Phase 1. The reconstruction served as a laboratory where students and teachers from various disciplines worked hand in hand in the ongoing development, both education and research. The practical knowledge acquired includes installation of solar panels, system collected rainwater, green building materials, and practical training in sustainability.

Construction stages: from 2008-2015

- Iron Armor, reinforced and nailed to the ground.
- New and treated Wood, to prevent termites. The land was tried before installing wood with cedar oil and Borax.
- Ramp for disabled, entrance and terrace wood treated with eco-friendly paint.



## □ Projects: 2016-2017

- Ecological garden of edible ornamental plants and herbs, pollinators and organic gardening. Most plants were donated by the Alzamora Farm UPRM, and by the contribution of students and staff. Group of volunteers have monthly household work performed maintenance and conservation garden in raised beds made and the ecofriendly garden.



- **Rainwater Collection Project** to irrigate plants organic gardening, using cistern water and rain collection system. The soap used in the washing machine is environmentally friendly.



**Project collects rainwater to water the plants. Aluminum barrels to keep it in an ecological way. Thanks to a Mini Grant from the University of Syracuse and Green PR project. Undergraduate students from different disciplines in the Eco Solar House - UPRM.**

Figure 4. Mini Grant students and volunteers working on the project.

- Also, offered the **Organic Gardening workshop**, lectures on **Ecological Insecticides**, free of harmful chemicals for the environment, by Dr. Hipólito O'Farrill an entomologist.
- And workshops of **Eco-Kitchen**, coking many recipes made with organic, wholegrain and local produce, where people learned to make the recipes and the reasons why they are using these ingredients and utensils, and the benefits to their health and the environment.
- **Golf Solar-Electric Car:** Converted to solar by Dr. Aponte Bezares and IPA undergraduate EE students.



**Exhibits:**

- **Lightbulb Exhibits-** This is a lighting project, where the consumption of three different types of lightbulbs is presented. This project was developed by undergraduate students Angel L. Rodríguez Ortolaza, Jan G. Ortega Suarez and Kevin A. Rivera Tirado. Sponsored by Green Campus.
- **Solar system** by **Maximo Solar Industries**: descriptions of material – *Deka Solar Batteries AGM 8a27 DT (12), Charge controllers Xantrex MPPT 60/150 (2), Inverter Xantrex XW 4548 (2), Solar Max Battery Cabinets GSPR1 (3), Structure for 39 panels (1)*
- Eco-friendly paint from **Master Paints**, was donated by Mr. Miguel Vergara, Paint for desk and treatments manager of this company located in Guayanilla, PR. (Total in materials \$500)



**Abbot**, monetary contribution for the project to help maintaining the facilities.

**The newest plan can be found at**

[http://campusverde.uprm.edu/solarEcoCasacambio4-18-13-2-Plano\\_Model.pdf](http://campusverde.uprm.edu/solarEcoCasacambio4-18-13-2-Plano_Model.pdf)

Photos at: [https://photos.google.com/u/1/album/AF1QipPwJJUR6piSBIOEGGrTFFMUNIYP86ZoDmO\\_V2aF](https://photos.google.com/u/1/album/AF1QipPwJJUR6piSBIOEGGrTFFMUNIYP86ZoDmO_V2aF)

**The house was completed through the efforts of the Personal:**

Dr. Sandra Cruz-Pol, Dr. José Colom Ustáriz, Dr. Erick Aponte, Department of Electric Engineering,  
**Contributors:**

Engineering Workshop, Student volunteers, Student Associations Campus Green and Green Buildings and Sustainability, Dean of Engineering, Ellen Acarón the Department. Buildings and Grounds and Dr. Fernando Abruña.



Figure 5. : Committee of Green leader students as Ushers at the Eco Solar House – Open House (JUNE 23/2016)

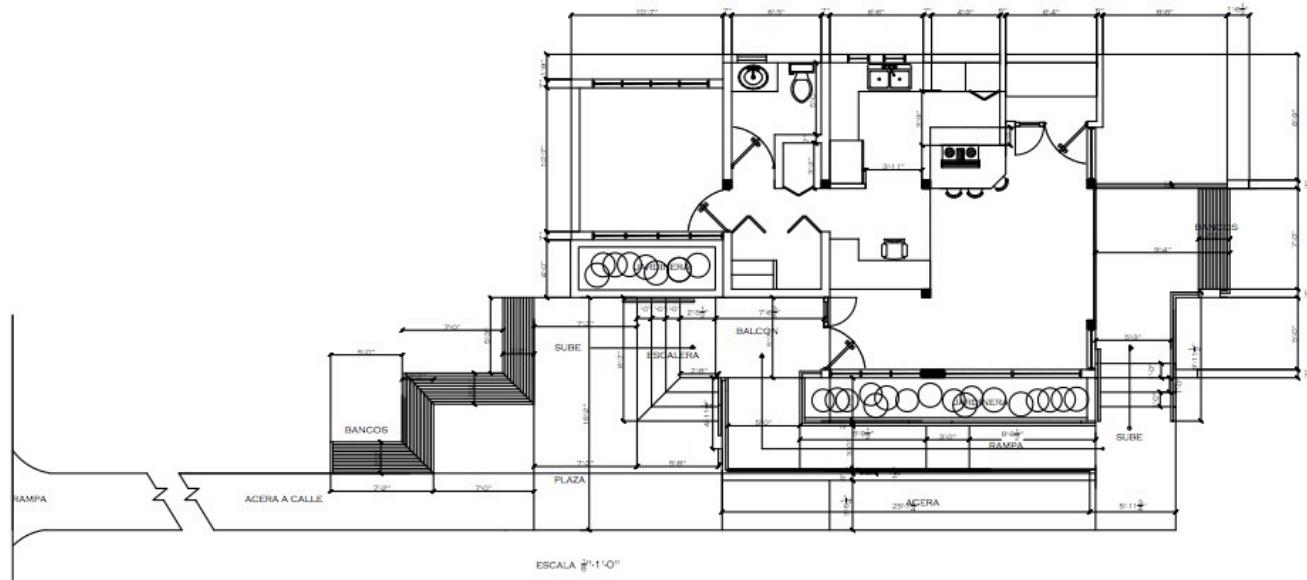


Figure 6. New layout with handicap ramp and balcony.

We are submitting proposals to the government of Puerto Rico and to several private corporations to support this new sustainability showcase. A Copy of the proposal can be found online at:

[http://campusverde.uprm.edu/Proposal-GreenCampus\\_UPRM\\_Eco\\_House.pdf](http://campusverde.uprm.edu/Proposal-GreenCampus_UPRM_Eco_House.pdf)

## **VI. Proposals and Awards**

### **A. Awards Applications**

1. HACU Award: Submission for HACU Climate Award Solution.
2. Energy Globe Award for \$10,000, Europe.
3. Premio Peter Muranyi 2017, for \$60,000, Brazil.

### **B. Proposals Submitted:**

1. “INFEWS: T3: Culebra Urban Resilience for Food, Energy and Water- CURFEW”, Submitted in Mar2016, NSF, \$2,998,151/3yr.
2. EPA PP: “Eco Sustainability Training and Awareness Rewards (EcoSTARs)”, \$182k/3yr, EPA Pollution Prevention Program.
3. EPA PP: “Water Conservation, Energy Efficiency and Stormwater Pollution Prevention Assessment on Food Services Establishments, Beauty Salons, and Automobile Maintenance and Repair Shops, \$283,709/3yr, EPA Pollution Prevention, Approval
4. “Latina SciGirls” EcoChicas! Mini-Summer Camp for girls, NSF \$6k/2yrs, Feb 2016, Approval
5. “Kayak Green Adventures”, Ford Becas Ambientales, \$5k, May 2016
6. “Museum Exhibits Casa EcoSolar”, Ford Becas Ambientales, \$2k, May 2016
7. “Electric Solar Golf Car”, Ford Becas Ambientales, \$3k, May 2016
8. “Education and workshops in Composta”, Ford Becas Ambientales, \$2K, May 2016

### **C. Approved Proposals:**

#### **1. EPA Pollution Prevention (PP):**

EPA “Water Conservation, Energy Efficiency and Storm water PP in 3 types of business “for ~\$280,000.

## **VII. Tree Committee & Reforestación Colegial**

Since early in year 2013, the experts in topics related to tree interference in a Tree Policy for the first time in 100 years since the foundation of the institution. This policy is being reviewed by the administration since that year. The idea is that the committee be consulted before the cutting of any tree within the campus. During last year, we have not trees protection projects as it has established a preservation order considering the trees as an important source for nature. There have been several trimming of trees that appeared sick, but were actually found by PhD in phytopathology and agriculture, to be going through a natural healthy process, and were spared from being cut down.



The university administration will coordinate with the student associations Reforestación Colegial in regular planting trees and palms in proper places. For this reason, the members of the academic community wishing to plant trees or palms must request permission from the Director of Fields and Roads Department and receive prior to planting.

## VIII. Eco Cine: More Leveraging

Campus Verde has previously offered numerous documental movies with topics related to sustainability, social and environmental well-being. All the movies are announced through our *Eventos Verdes* webpage, cartero email-list and social media.

### Eco Cine: -STINK: The Movie -El Gallo Pelón



We have selected the series from films which will provide you with information for living harmoniously with the planet. However, we cannot control the content of all of the films and we are not trying to be activists; rather we think that you can be part of the solution with everyone becoming aware of the present and planning for the future. Thus, we would want

to work within the political system to educate, not alienate. We can make a difference with one individual, within one community; it does make a difference. Let's try to make the as many drastic changes during the next 100 years as we made during the last 100 years, but in a more rational and sustainable mode. We have the support of the **Government Ethics (GE)** office to validate hours in ethics and environmental education which gives employees and faculty contact hours for the benefit and development in ethical environmental materials.

**Figure 7.** List of movies that have offered and will be shown again during the semester free of charge.



## IX. Education and Outreach Activities 2016-2017

During the academic year of 2016 to 2017, Campus Verde coordinated dozens of activities reaching hundreds of students and general public. We participated in several environmental and social activities such as:

- **5/17/2016: SciGirls Summer Camp:** Convocations for summer camp that took place in the EcoSolar house opened in July. SciGirls's summer camp is for 10 girls between the ages of 8-13 years. Sponsored by the National Sciences Foundation.



- **7/11-24/2016: SciGirls 'EcoChicas' Summer Camp:** The four-day summer camp was comprised by a group of 13 girls accompanied by an adult with the purpose of increasing the participation of women, especially Latinas in STEM programs. Another goal of the program was to include parents to improve their perception of women in sciences. They received workshops in science, bird watching, cooking, poster creation and others.
  - Article: <http://www.uprm.edu/portada/article.php?id=3690>
  - Photo album:  
[https://www.facebook.com/pg/campusverdeOriginal/photos/?tab=album&album\\_id=1633444856971244](https://www.facebook.com/pg/campusverdeOriginal/photos/?tab=album&album_id=1633444856971244) ,  
[https://www.facebook.com/pg/campusverdeOriginal/photos/?tab=album&album\\_id=1632950580354005](https://www.facebook.com/pg/campusverdeOriginal/photos/?tab=album&album_id=1632950580354005)



- **8/4/2016: Welcome to New Students:** Pre-Green Assembly and Information Desk of Campus Verde, Casa EcoSolar and Student Associations. At Coliseum R. Mangual in UPRM.
  - Photo album:  
<https://www.facebook.com/campusverdeOriginal/photos/a.1718602405122155.1073741843.1511274885854909/1718613391787723/?type=3&theater>



- From August 5 to September 8: Meetings with the Rector and organizers including Ellen Acarón, Maritza Laracuente, Lourdes Ayala and Dr. John Fernández Van Cleve and Lucas Aviles, Guardia Universitaria and collaborators on the preparations for the **Green Sheikh's Visit**.
  
- **8/11/16: Forum at Radio Colegial:** Radio interview at 2:30 p.m. Promotion of the Green Sheikh's visit.
  
- **8/17 / 2016: Radio interview with Toti Figueroa:** About the Green Sheikh's Visit by Dr. Sandra Cruz-Pol.
  
- **8/18/2016: Meeting of Green Directives:** Plans for new semester, 10:30 a.m. in the EcoSolar House. Meeting with Dr. Marisol Vera and administration: Notify the Green Sheikh visit to EcoSolar House on September 8, 2016.
  
- **8 / 27 / 2016: Outreach:** Saturday: ***Planeta Digital with Ada Monzón*** and Dr. Sandra Cruz-Pol, at the Mayagüez Mall. With the support of the Museum of Sciences of Puerto Rico: **EcoExploratorio** presented the edition of Planeta digital that has a **Geodomo**: air inflatable cinema on sciences. Dr. Cruz Pol spoke to viewers about Environmental sciences and Meteorology. Campus Verde and UPRM Weather Radar Center had an information table during the event.



- **8 / 31/ 2016: Forum at Radio Colegial:** Radio interview with Dr. Sandra Cruz-Pol. About the new Environmental Sustainability Online Course.

- **HACU Award: Submission for HACU Climate Award.** About Education and research on Green Campus, the EcoSolar House and the New Online Course in Sustainability.
  
- **Visit of the Green Sheikh to the EcoSolar House** - Thursday, 8 / 08 / 16 at 9:00 a.m. Visit of the Arab Prince - Dr. Al Nuaimi. Exhibition and presentation of projects carried out in UPRM on environmental sustainability. Date Palm sowing. Presentation in the Anf. Figueroa Chapel 10:30. Themed: "Impact of Climate Change", "Energy Innovation and Sustainability Development" and "UAE's 2030 Strategic Plan".



- **Prensa RUM Article and Video:** <http://www.uprm.edu/portada/article.php?id=3748>
- **Complete conference:** [https://www.youtube.com/watch?v=klxW\\_qkMW9Y](https://www.youtube.com/watch?v=klxW_qkMW9Y)
- **Photo album:**  
<https://www.facebook.com/campusverdeOriginal/photos/a.1521854988130232.1073741829.1511274885854909/1662467000735696/?type=3&theater>

- **9/09/2016: Girls Scout visit the EcoSolar House:** Presentation of projects in STEM programs.



- **09/10/2016: EcoSolar House Visit:** On Saturday AmeriCorps members, received a talk on sustainability issues, a tour guided by the eco house



- **Online Course with DECEP:** [Environmental Sustainability](#) with Dr. Sandra Cruz-Pol. For the third consecutive time starting in February/17, until May /17.


**Oferta de Cursos en Línea**  
**Segundo Semestre 2017**

**Cursos en Línea**

**Sostenibilidad Ambiental- \$90**  
**Sábados 9:00 A.M. a 12:00 M.D. (25 de febrero al 6 de mayo de 2017)**  
**Prof. Sandra Cruz Pol**

¡Matrícula abierta!  
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- **9/17/2016: International Cleansing with Scuba Dogs Society and Campus Verde Students:** at Playa Golondrinas, Isabela. Share with **Student Associations**. Beach Clean-up Captain: Héctor Quiñones.



- **Photo album:**

[https://www.facebook.com/pg/campusverdeOriginal/photos/?tab=album&album\\_id=1667793833536346](https://www.facebook.com/pg/campusverdeOriginal/photos/?tab=album&album_id=1667793833536346)

- **9/21/2016: Welcome EcoParty:** Welcome to new member's students- at EcoSolar House from 6:00 p.m. Refreshments and Karaoke.



- **Photo album:**

<https://www.facebook.com/campusverdeOriginal/photos/a.1521854988130232.1073741829.1511274885854909/1669656003350129/?type=3&theater>

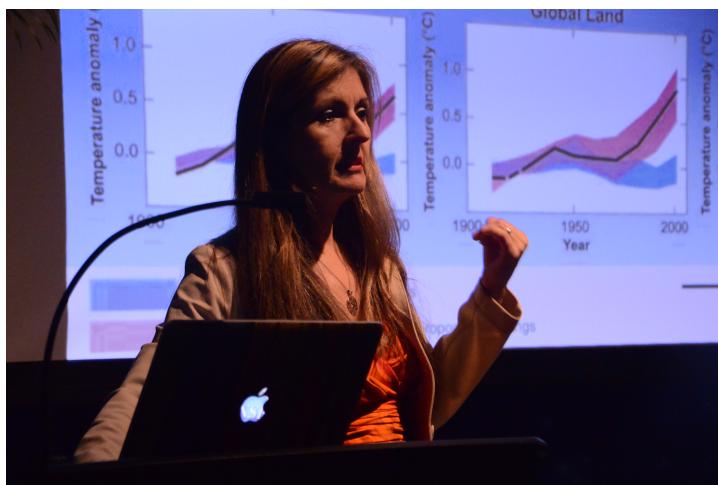
- **10/1/2016: Training in Sustainability to offer lectures** – Certificate was given to students passing an exam at the end of the training. The activity took place at S-227 (a.m.) and in the Casa EcoSolar (p.m.)- lunch and snacks were offered. The participants receive this workshop where they learn about sustainable topics and the techniques of how to teach and demonstrate these.

- **Photo album:**

<https://www.facebook.com/campusverdeOriginal/photos/a.1718602405122155.1073741843.1511274885854909/1718614831787579/?type=3&theater>



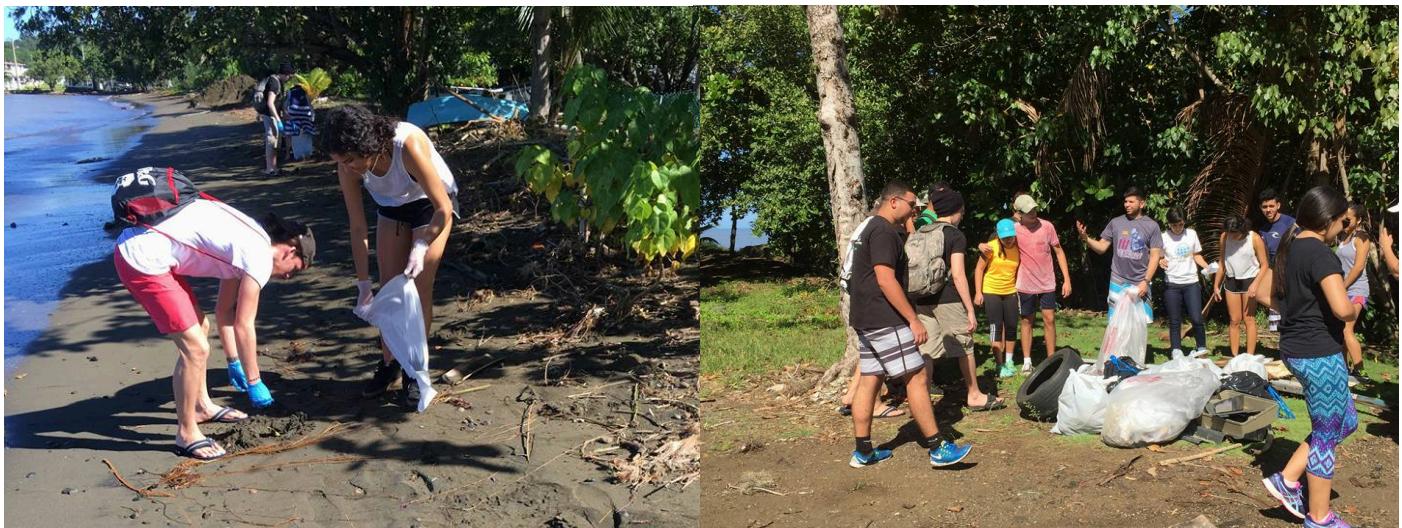
- **10 /4/ 2014: Outreach:** In sustainability and recycling themes at CROEM School, Mayagüez with Ms. Mary Padilla, by Dr. Sandra Cruz-Pol.
- **10/10/2016: Outreach: Arecibo Observatory** on speak for Campus Verde, by Dr. Sandra Cruz-Pol. *Vivir Verdemente Ahorrando \$.*



- **10/11/2016: EcoCine: Movie STINK: Awareness in the Month on Breast Cancer.** Resource: Director of Calidad de Vida-UPRM, Dr. Gustavo Cortina.



- **10/15/2016: Beach cleaning Bo. El Seco.** Supported by **Campus Verde Students**.
- **Photo album:**  
<https://www.facebook.com/photo.php?fbid=10157542560390048&set=pcb.10154513820395539&type=3&theater>



- **10/20/2016: Energy Audits:** by **Green Buildings & Sustainability Group.** Resource: Dr. Lionel Orama, UPRM Professor, Electrical Engineering - Power.



- **Photo album:**  
<https://www.facebook.com/campusverdeOriginal/photos/a.1718602405122155.1073741843.1511274885854909/1718615128454216/?type=3&theater>
- **10/20/2016: EcoCine: The Gallo Pelón,** at EcoSolar House, 6:00 p.m. Sponsored by: IEEE, PES and Campus Verde Students.
- **Unicef for Haiti on Oct 2016:** After the devastating earthquake that occurred in Haiti the student organization UNICEF was given the task of collecting items of first necessity to be sent to the victims



- **10/ 22 and 23/ 2016: Review for LEED GA:** Resource: Onell González at Tarzan Room in UPRM. Prepared by the **Student Association GBS.** It is a review to prepare participants in order to take the LEED test offered annually. It provides students the necessary tools on sustainability topics.



- **Photo album:**  
[https://www.facebook.com/pg/GBSRUM/photos/?tab=album&album\\_id=1106581086124429](https://www.facebook.com/pg/GBSRUM/photos/?tab=album&album_id=1106581086124429)

- **10/28/2016: EcoCocina Workshop: Artisan Pizza and Organic Crackers.** We do all we can to ensure that all or at least most of the ingredients are organic, natural and local. By showing people who can make healthy, tasty meals at home without having to put their health at risk.



- **Photo album:**  
[https://www.facebook.com/pg/campusverdeOriginal/photos/?tab=album&album\\_id=1692049451110784](https://www.facebook.com/pg/campusverdeOriginal/photos/?tab=album&album_id=1692049451110784)
- **10/28/2016. Ecological Garden Workshop:** Hands-on Workshop for volunteer students of Campus Verde and the EcoSolar house. Volunteers helped in the development and maintenance of garden

projects, rainwater harvesting and green areas of the house.



- **10/29/2016: Company Night** with Students Associations affiliated to Campus Verde. Their mission and work are presented to gain companies support.



- **11/16/2016: Summit for Energy Globe Award** under the theme of **Youth**. This proposal was submitted online for a chance to win €10,000 in funds to support our green initiatives.
- **12/2/2016: Composting Workshop in the EcoSolar House**. Resource: Edwin Vázquez. Coordinated by the CVS Student Association. It shows how to make a compost and its advantages.



- **12/9/2016: EcoCocina: Typical dishes-** Brown rice with pigeon peas and “pasteles” with veggie ‘meat’. The ecococina also has healthy benefits for both the planet and our health, traditional recipes can be made only changed some ingredients and vegetables. **Photo album:** <https://www.facebook.com/campusverdeOriginal/photos/a.1718602405122155.1073741843.1511274885854909/1718615888454140/?type=3&theater>



- **12/2/2016: Outreach: Visit of McNair Program of the Inter-American University, San Germán to the EcoSolar House.** The Ronald E. McNair program in San Germán, promotes and collaborates with research at the undergraduate level. The program is scheduling an orientation visit to the Graduated Program of UPR - Mayagüez. We are joined by Prof. Roxane Cepero, program coordinator.



- **12/7/2016: Outreach: December 7, 2016:** Inter-American University in San Germán, by Dr. Sandra Cruz-Pol. Lecture to Chemistry, Biology and Environmental Technology students, with Ángela M. González, Ph.D. Chemistry Associate Professor. Talk on LiveGreen.



#### **Activities from January to May 2017:**

- **19/01/2017: Meeting of CV Directives:** Directives came together to consolidate activities and to collaborate.
- **20/01/2017: Outreach UPR Ponce.**  
Table demo with topics in Electrical Engineering and Sustainable Development
- **25/01/2017: Preparation of EPA Proposal,** with Patrick Reyes, Mari Zapata and Carmen Castañeyra.
- **28/01/2017: Visit Eco House from Company LM** (Lockheed Martin). Invited by the COOP director in Engineering, Ellen Acarón.



- **8/02/2017: Outreach on Elementary School Bo. Balboa GREEN SCHOOLS GBS**



- **9/02/2017: UNICEF meeting.** We welcomed New members and members for our directive and traced a working plan for the whole academic year.
- **14/02/2017: FREEHUGS Student Center UNICEF** Members. The campaign was started in 2004 by an Australian. The campaign became famous internationally in 2006.



- **Photo album:**  
[https://www.facebook.com/pg/UNICEF.UPRM/photos/?tab=album&album\\_id=1652304138120123](https://www.facebook.com/pg/UNICEF.UPRM/photos/?tab=album&album_id=1652304138120123)
- **Article by Prensa RUM:** <http://www.uprm.edu/portada/article.php?id=3872>

➤ **24/02/2017: Garden MAINTENANCE AT THE EcoSolar House.**



**Photo album:**

<https://www.facebook.com/campusverdeOriginal/photos/a.1521854988130232.1073741829.1511274885854909/1757144194601309/?type=3&theater>

- **3/03/2017: Visit to Casa EcoSolar:** Elementary School Mariano Riera Palmer Mayaguez, 33 first grade students
- **7/03/2017: ECOCOCINA:** On this occasion, we taught the participants how to prepare vegetarian Fried Rice, Lo Mein, and for dessert, we baked organic banana muffins.



- **10/3/2017: EcoSiembra and brigade in EcoSolar House:** New pollinating plants were planted thanks to the support of Finca Alzamora (Jose Ariel Muñoz, Administrator) and weeding brigade to keep the area clean and attractive to the public. Here with Dra. Sandra Cruz-Pol, Yamitza Gaztambide and Angel Rodríguez



- **10/03/2017: Weather Fest:** As during past years, Campus Verde participated in this event, attending an information table with literature and demonstration about Engineering Sustainability, at Colosseum Rafael Mangual. Students from the three (3) Ride, GBS, Campus Verde Student and UPRM Weather radar networks students participated as shown below.



Photo album:

<https://www.facebook.com/campusverdeOriginal/photos/a.1521854988130232.1073741829.1511274885854909/1757144194601309/?type=3&theater>

- **15/03/2017: School Visit to Casa EcoSolar: Upward Bound Program U.I.P.R. Aguadilla Campus.** We received 60 students and teachers and presented them with guided tours to the facilities. We divided the group into three demonstration sections between the Electromagnetic Laboratory, Meteorological Radar and Casa EcoSolar. **Photo album:** <Https://www.facebook.com/campusverdeOriginal/photos/a.1521854988130232.1073741829.1511274885854909/1768371316811930/?type=3&theater>



- **14-18/03/2017: FERIA 5 DIAS CON NUESTRA TIERRA:** 5-Day Fair with Our Land. Student demonstration on the table. Promotion of Visit to Casa Pueblo organized by GBS. Planning with the 5-day organization for guided visits to Casa EcoSolar on Thursday, March 16th. **We received more than 180 visitors in one day. Photo album:**

<Https://www.facebook.com/campusverdeOriginal/photos/a.1521854988130232.1073741829.1511274885854909/1768489120133483/?type=3&theater>



- **24/03/2017 Visit to Casa EcoSolar** students of electricity and PLC of the **Institute of Banca**. Talk about the Photovoltaic System and the electric-solar golf cart modified at UPRM, by Dr. Erick Aponte Bezares and a talk about sustainability by Dr. Sandra Cruz-Pol.



- **31/03/2017: Workshop of Windmills** organized and presented by the student Jan Colón of the **GBS Student Association**.



- **5/05/2017: Visit from Elementary School Consuelo Pérez Cintron**, Green talk and kids book read.



➤ **28/04/2017: Outreach School: Catalina Morales de Flores High School in the town of Moca:**

Workshop on Solar Circuits, Vive Verde and Green Savings. Workshop of Solar Cars with the Professor Dr. Marcel Castro. **Photo album:**

<https://www.facebook.com/photo.php?fbid=10158554966820048&set=pb.713790047.-2207520000.1496850452.&type=3&theater>



➤ **Design competition for shirts:** supported by the Campus Verde Student Association, the competition was composed of 6 designs. It was consulted through likes on Facebook and was dismissed by means of jury votes of the board. The winning design was of Angel Rodríguez Ortolaza.



✓ **Events canceled due to student strike (campus blockage) of the Mayaguez campus of the University of Puerto Rico:**

- Visit of 60 students from the Marist School in San Juan to the Casa EcoSolar. (May 2017)
- EcoConciencia Collegial Symposium with special guests such as the architect Fernando Abruña, Joaquin Chong and Pedro Tarafa. It was planned to offer gifts like reusable bags with Green Campus logo and Casa Eco Solar to those present (April 18, 2017).
- Initiation Ceremony and dinner for new members of the Student Associations.
- Celebration of a Decade of the Green Campus Initiative with the theme "10 years of collegial greenery". (April 18)

- Interview from the University of Columbia to apply for funds related to the photovoltaic system of the EcoSolar House. (May, 2017).
- Posponed of the EPA proposal activities of about \$ 300,000 to do environmental counseling including energy audits in some 120 businesses, beauty salons and restaurants in the town of Aguada, with the aim of expanding it to all peoples.

✓ **Offering Ecological merchandise for a suggested donative, FUNDS FOR MAINTENANCE:**

- Shampoo Bar Auromere, with organic essential oils
- Reusable canvas bags with logo
- Stainless Steel Cups for water or coffee- 6 onz
- Organic Snacks
- Reusable cloth bags foldable shaped fruit and flower



## X. Surveys: All of the surveys below offered a prize to encourage participation.

- **Surveys Ecococina workshops.** Chosen recipes that people like to learn to make an ecological way. Including the schedule and the price of the class.  
Link: <http://goo.gl/forms/yREihqwxJ058ZTKz1>
- **Survey Green Environmental issues.** Is send every year to all the community.  
Link: <http://goo.gl/forms/T9OU0FXQzQ1ftefs1>
- **Survey on the effects of smoking on the environment.** An ecological ashtray will be given away to encourage people not to throw their cigarette butts on the ground or land and polluting because of the large amount of chemicals they have.  
Link: <http://goo.gl/forms/K8iMO2gPUk49ECjF2>
- **Survey toilet paper.** About how we must learn to make good use of the toilets reducing contamination in the bathrooms of UPRM. Link:  
<http://goo.gl/forms/pUWAAKyMZXD9fAI92>

## XI. Radio interviews and TV Press



## XII. Internationals Travels and Conferences by Dr. Sandra Cruz Pol:

- **Australia November 2016:** International Conference on Engineering Education and Research (ICEER2016) with Dr. José Ferrer: **Design, Development and Administration: Best Practices for Future Engineering Full Online Courses.** In this talk the assessment of the online Environmental Sustainability course was presented.



- **Colombia May 2017:** May 2-6, VISION Latino Americana 2017, to which the doctor SCP was invited to be a speaker at a presentation on "**Scientific Research for Sustainable Development**". Her talk was titled "La importancia de la Educación Multi-disciplinaria en el Desarrollo de Tecnología Sostenible" <http://www.visionlatinoamericana.com>
- **Recognition prize to Dr. Sandra Cruz Pol y Dr. José Ferrer for the presentation in Australia.** *Design, Development and Administration: Best Practices for Future Engineering Full Online Courses* was the title of the presentation of educators as part of the International Conference on Engineering Education and Research (ICEER2016) held at Western Sydney University, Australia. In this the assessment of the online Environmental Sustainability course was presented. Article: <http://www.uprm.edu/portada/article.php?id=3906>





CAMPUS VERDE - COLEGIO DE MAYAGUEZ  
Universidad de Puerto Rico

## XII. Student Chapters:

Campus Verde has previously served as an umbrella for green activities from other student associations and chapters. We have **Ride-a-Bike**, a group that promotes biking as a means of clean and healthy transportation and lead by the counselor Jorge Bencosme. We promote their activities through all of our means including social networks like Facebook and Twitter.

The group of student, the **Green Buildings & Sustainability** student chapter. This group development the **Cool Cities subgroup** which coordinates talks to schools about sustainability topics. It also helps with the annual coordination of the **LEED (Leadership in Energy & Environmental Design)**. Certification course and with corporate visits to USGBC certified Green Building in Puerto Rico. **UNICEF** is also integrated to our student organizations. This group deals with the mitigation of extreme poverty which has been augmented due to climate change. Our UNICEF Team previously finished 3<sup>rd</sup> among 85 university teams in collecting donations for children.

In addition, Campus Verde has a student chapter, called **Campus Verde Students** that helps coordinate green activities like talks to schools, beach cleanups and tree planting with other student associations as **PRWEA, IEEE, Tau Beta Pi, BBB, SWE, SHPE**, and others. And **AmeriCorps** as a group of members affiliated to Campus Verde.



**Figure 8:** Student chapter affiliated under Campus Verde, in addition to our collaboration with green activities of other student's chapters and our Campus Verde Students.

## A. Campus Verde Students

As mentioned above CV counts with a student chapter. This group of students is a very active and dynamic group that brings ideas and actions. Help coordinate green activities like beach cleanups and tree planting with other student associations as **EAE, IEEE, Tau Beta Pi, BBB, SWE, SHPE**. Below is a list of our directive from this year. Info at:

[http://www.uprm.edu/p/campusverde/campus\\_verde\\_students](http://www.uprm.edu/p/campusverde/campus_verde_students)



### Educational, Recreational and Committees:

**Cleaning committee to nature:** cleaning coastlines, beaches and rivers

**Recycling Committee:** UPRM, meeting with the university administration about the situations encountered following material collected for recycling.

**Eco Solar House committee:** Ushers and volunteers for activities and maintenance and development of the various projects of the house.

**Sales of organic snacks** and flowers: To provide people with alternatives different consumption and sale of sunflowers for Valentine's Day.

**Ecocene committee:** Provide different education resources to the university community

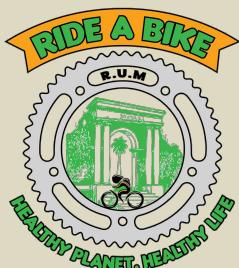


Figure 9. : Students positions for the CV Student chapter. Positions for the year 2016-17. Activities are part of Campus Verde Organization.

## **B. Ride a Bike: Promote Bicycle Transportation**

**1. Official Student Organization:** Ride a Bike is an official Student Association in Campus.

Visit <http://bike.uprm.edu/Ride a Bike/Inicio.html>



**2016 – 2017:**

**§ Consejero:** [Jorge Bencosme](#)

**§ Presidente:** Luis Miguel Rivera Malavé

**§ Vive Presidente:** Alejandro Chardón

**§ Secretario:** Angel Falú

**§ Tesorero:** Martin Otero

**§ Vocales:** Emanuelle Rodríguez, Edwin Ortiz, Siul Muñoz, Sebastin Sosa, Hernán Miranda, Orlando Delgado y Rolando González



Figure 10.

Students positions for the Ride a Bike Student chapter. Positions for the year 2016-17. Photos of a ride to Cabo Rojo – Mayagüez, and the Bici-flechas paintings.

### **2. Project:**

- **Mission:** To promote the use of bicycles as alternative transportation to reduce traffic congestion, contribute positively to the environment and improve the quality of life of the whole community.
- **Vision:** To work actively in the promotion of cycling and its benefits as a means of alternative transportation in and out of the campus including the community in general.

### **• Objectives:**

- Educate the university community and the general public about the benefits of using bicycles as transportation, recreation and lifestyle.
- Intercede for infrastructure provided by the university administration and the municipality to facilitate and promote the use of bicycles.
- Recreational Plan for fraternization Member activities.

### **3. Educational, Recreational and Outreach Activities: 2016-2017**

Visit:

[http://bike.uprm.edu/Ride\\_a\\_Bike/Fotos/Fotos.html](http://bike.uprm.edu/Ride_a_Bike/Fotos/Fotos.html)

During the 2016-2017 academic year, Ride a Bike (RaB) encouraged the community with various activities for the enjoyment and convenience of it. For the orientation week, the attention of new students was captured by showing them the benefits of riding on bicycles through Mayagüez including the UPRM. Likewise, we were invited to a race where we showed the participants preferred routes which give access to diverse places of interest. As part of the activity, emphasis was placed on the general rules for safe use of the bicycle when traveling on public roads. Our



activities also impacted the community outside the Campus. This was demonstrated in the last activities of the semester of 2016 where more than 30 people participated per race. In these events, we take care of cycling around neighboring villages while providing participants with hydration, snacks and assistance as needed. At these events, a donation was requested from the participants to defray the expenses of these offers.

Another of Ride a Bike's achievements for this academic year was to encourage competitive cycling by creating and distributing uniforms for the sport. With a logo that reads "UPRM Cycling", students who practice of the sport at competitive level could represent their alma mater in competitions of diverse modalities. In cases, the name of the institution was put on high to these athletes get to finish their careers in the first positions. From the sale of these uniforms, money was obtained for future activities.

One goal of RaB has been to improve the UPRM's pedestrian and cycling infrastructure in collaboration with the Campus Master Bike Plan (PMB). Next to the PMB was created the "Day of Painting the Streets of the UPRM" where, with the help of volunteers from the university community, Bicilechas was painted to designate shared lanes, pedestrian crossings, a cycle path on the main avenue for the exclusive use of bicycles and A "bike box" at the main entrance so that cyclists can stand in front of the cars waiting for the change of light.



Finally, in conjunction with the Master Bicycle Program of the UPRM and the Dean of Administration, it was possible to incorporate the Bicycle Services Cooperative (BiciCoop), which through a local in the Terrace of the Campus Students Center will be offered to the university community a space where they can receive services of maintenance and repair for their bicycles. In addition, a bicycle rental system will be implemented for the benefit of those who do not have their own unit. Articles related to the use of the bicycle will also be offered to promote the safe use of the bicycle. The services provided by **BiciCoop** have been offered during the academic year preliminarily in the **FixIt** station in what the local is finished being enabled.



Obviously, we have had a positive impact on our community. We hope to continue doing good works, that these replicate around the whole country and become customary for future generations.

**Article:** <http://www.primerahora.com/elnorte/noticias/puerto-rico/nota/bicicoopaspiraamejorareltransporteenuniversidaddemayaguez-1230275/>

## C. Green Buildings and Sustainability

- Official student Organization:** Green buildings group strive in planning workshops and outreach are aimed at students from middle and high schools, as in the search for alternatives by doing research studies in buildings UPRM looking for new ways to energy savings.



2016 - 2017

- President:** Nicole Farinacci Santos
- Vice-President:** Leamsi Guzmán Bufill
- Finance Manager:** Desirée Nieves
- Public Relations Coordinator:** Joel Vázquez
- Secretary:** Jossmarlyn Montañez
- Director of External Activities:** Marcos Piñeiro
- Director of Internal Activities:** Mariano Rivera
- Vocals:** Jan Colón, Jan Noriega, Jorge Soldevila



Figure 11. : Students positions for the GBS Student chapter. Positions for the year 2016-17.

## 2. Educational, Recreational and Outreach Activities: Internal Events:

During the Fall Semester 2016-7 GBS-UPRM held:

- 2 General Assemblies: August 2016 and January 2017**
- 6 Recruiting events**
- LEED Green Associate Review Course: October 2017**
- Energy Audits**



**Casa Pueblo Visit at Adjuntas, PR: Abril 2017**

**3. Projects:**

- Energy Audit Committee:** During this semester the energy audit group 3 conferences in which 15 students were introduced to the project and the metrics used to make it possible. These students will create groups, and they will be assigned to a building in campus to recommend alternative that will help lower the use of electricity and make the use more efficient.
- Green Schools:** The committee is responsible for carrying out activities and visits to schools by providing talks related to education in areas such as environmental awareness, renewable energy, recycling and others. In addition to the lectures, students are taught to participate in the various dynamics and workshops that provide them so they can display the message real and experimentally.



Figure 12: GSB Team meeting

## **D. UNICEF**

### **1. Official student Organization:**

Association designs its fundraising activities and to Create Awareness of the current situation of poverty across the planet. Helping to eradicate extreme poverty Planet, which has been magnified with Climate Change due to extreme droughts, floods and other events that affect agriculture, life and property. Every contribution makes a difference.



**2016-2017**

**President:** Frederik Gonzalez  
**Vice-President:** Yvette González  
**Finance Manager:** Kariel Díaz Maisonet  
**Secretary:** Rosa López  
**Marketing Manager:**  
**Counselor:** Dra. Sandra Cruz Pol



### **2. Educational, Recreational and Outreach Activities:**

- Sales (Sweet and Salty Out, Out Brownie, Popcorn Sale)
- Free Hugs Sale
- Valentine, UNICEF's with (sales and activity Valentine)
- Believe in Zero (awareness activity)
- Teach UNICEF (child education activity in collaboration with ACS)
- Trick or Treat for UNICEF
- Guidance -Asamblea
- Day of Prepas (orientation table)

> Unicef UPRM TEAM #1 in money donations.



## **E. Additional alliances and dissemination**

1. In our effort to reach beyond the university limits, we have formed the following alliances and dissemination strategies:



We have just started an official collaboration with **Dr. Jane Goodall's Roots and Shoots (R&S)** environmental program, so our program is officially affiliated to them! This was as a result of our talks with Dr. Rick Asselta, Puerto Rico's R&S representative. Visit on January 30, 2014 Rick Asselta and his group visit us to see how we can collaborate to create a greener Puerto Rico. **Jane Goodall** founded **Roots & Shoot** environmental chapters (R & S), first in the U.S. and now across the globe.

**Campus Verde is proudly affiliated to Dr. Jane Goodall's R&S Chapters.**



Figure 13: **JGI Roots & Shoots Latin America & Caribbean (LACRIB)**

2. We have our Twitter account linked to a global group in Facebook called *Campus Verde* so that we can reach people outside the academia with tips on how to save money and help the environment. We've had people from as far as Argentina complementing the group messages!

**More than 5,000 likes!**



**FB page: Campus Verde**



**@CampusVerdeUPRM**



### XIII. Energy Conservation and Efficiency Proposal to UPRM

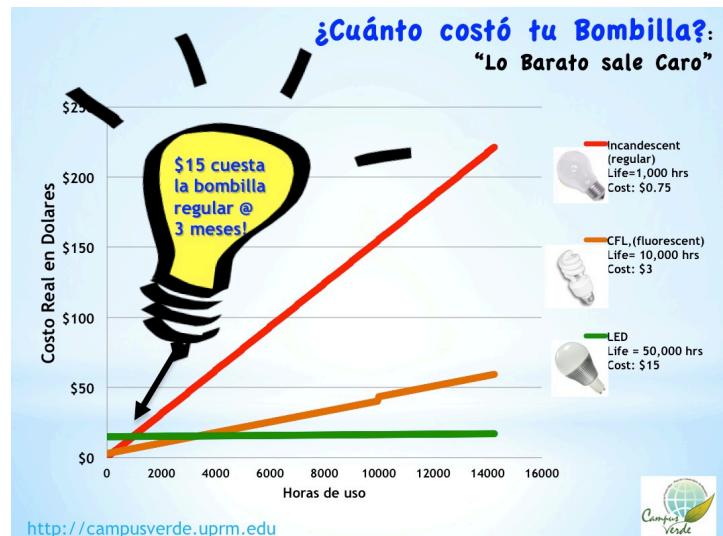
Our green leader Jorge Bencosme, produced a document with an inventory of the outside lightning around campus to show all the lights that remind on due to photo control failures or not been controlled automatically by a photo control or timer.

This document was updated and can be viewed and downloaded at [http://campusverde.uprm.edu/ReporteAhorro\\$LuminariasRUM.pdf](http://campusverde.uprm.edu/ReporteAhorro$LuminariasRUM.pdf)

In the document is referenced the section of Energy Conservation, part of the Energetic Plan of the institution in which compares the cost analysis of replacing the existing outdoor lighting for a more energy efficient one, and the time it will take to recover the investment with the savings in energy bill.

It was proposed that:

- The administration should consider the option of replacing outdoor lighting with new luminaries that can be deemed when full light output is not needed.
- Consider turning off some outdoor lighting were security is not a concern or the light does not need to be on all night.
- Energy consumption should be metered in all buildings. This data should be public as we are a public institution and will encourage to pursue energy efficiency and been an example to others.
- Equipment such as air conditioner should have the option to be remotely controlled or turned off when there is no occupancy of the building or office. Office and hall lights should be controlled by occupancy sensors.
- Entrance, halls and outdoor lighting operation in the buildings can be improved and made more efficient by automated controls such as photo controls, motion / occupancy sensing and remote-controlled circuits.
- Start projects for generating renewable energy in campus and pass that clean energy to the electric grid to be locally used and reduce the carbon footprint.
- In the long term, develop the campus electricity grid to be a smart grid.



## XIV. Education and Outreach Materials and Training

### A. Training for students and personnel about Global Warming Solutions:

New course created in Spanish **INTD 3357- 3 credit course Environmental Sustainability**

1. **Online Course-** New Course on Environmental Sustainability offered twice through **UPRM DECEP**, Feb-Mar 2016 and Jun-Jul 2016 Feb – May 2017 for six weeks, 18 hours, including the following topics;

- *¿Qué es Sostenibilidad?*
- *Introducción al Cambio Climático*
- *Ahorro Verde*
- *Energía Renovable*
- *Transporte Ecológico*
- *Desperdicios Electrónicos*
- *Productos- Química Verde*
- *Agricultura orgánica*
- *Dieta ecológica*
- *Economía ecológica*
- *Las 3 R's: Reduce, Reutiliza, Recicla*
- *Consecuencias de lo que Compramos: el poder del consumidor*

The online course had record registration the first time it was offered, with participants from as far as Hawaii, Florida and Arkansas.

We continue offering the training given to students where they learn about Climate Change and its solutions in which the students are then tested and certified to give conferences, therefore spreading education. The past years, students visit several schools all over PR offering advice and talks. One of the 'adopted' schools has participated in beach cleanups with us and established a recycling program in their school.

### B. Outreach materials and training:

We continue to develop materials for our website including a new pages for cosmetic and green cleaners (<http://campusverde.uprm.edu/album.html> ), another about the link between healthy people and healthy planet (<http://campusverde.uprm.edu/ecosalud.html> ) and we continue to add our pages with additional food eco-friendly recipes, homemade insecticides recipes, and much more. Like this example:



Visit us at:

<http://campusverde.uprm.edu>

>>>Wow 18, 577 visit



CAMPUS VERDE  
Recinto Universitario de Mayagüez  
Universidad de Puerto Rico  
Mayagüez, P.R.

Hazte miembro hoy: Asociaciones estudiantiles  
afiliadas a Campus Verde. Regístrate: [Eventos Verdes UPRM](#)

CAMPUS VERDE - UPRM: Charlas, Simposios, Limpiezas, Siembra, Conciertos, Presentaciones, EcoCine, Proyectos... y más.



## Insecticidas Eco-Amistosos: baratos, natural y no dan asma.

*Insecticidas Naturales: sin tóxicos que causen asma, irritación y alergias. Son muy económicos y efectivos. Versión pdf.*

...para eliminar [hormigas, piojos, ácaros, mosquitos, pulgas, garratas, termitas y cucarachas en el hogar](#).

### ④ Ácido Bórico

### ⑤ Bórax

### ⑥ Aceite de Cedro (Repelente de Mosquitos)

### ⑦ Insecticidas para el Jardín- para controlar plagas en plantas y huertos caseros



#### Ácido Bórico:

Disuelve 1 cucharadita (5mL) de polvo de **ácido bórico** y 10 cucharaditas de **azúcar** en 2 tazas de agua (500mL); moja bolitas de algodón y colócalas por donde pasan los insectos, como dentro de los gabinetes del baño o detrás de la estufa, y también **LEJOS del alcance de niños y mascotas**.

- El **ácido bórico** deshidrata los insectos lentamente y ellos no se dan cuenta, de manera que los insectos NO crean inmunidad o resistencia al veneno.

Además el **ácido bórico** se puede usar como antiséptico para heridas leves, y para el acné pues es anti-bacterial natural. Tiene usos medicinales para tratar hongos, por ejemplo, y por eso se usa en las soluciones para lavar ojos y lentes de contacto. Además se usa para tratar madera contra las termitas.

Rocíe este polvo en las alfombras para **matar PULGAS, PIOJOS y sus huevos**. No se puede ingerir pues es **TÓXICO** y algunas personas son sensivas en la piel a este detergente.



#### Bórax:

Prepara tu insecticida: Mezcla una cucharadita de **bórax** con 2 de azúcar y riega el polvo por donde pasan los insectos y **LEJOS** del alcance niños y mascotas!

- El **bórax** es un **mineral natural** que sale de una piedra blanca y se usa como detergente para lavar ropa y sacar manchas de vajillas y ollas.

#### ¡Además es un excelente insecticida!

El **ácido bórico** se deriva del **bórax** y ambos se consideran seguros para usar en el hogar para el control de **cucarachas, hormigas, pulgas y garrapatas**. Su fórmula química **NO es igual**. Ambos se consiguen en ferreterías como *Home Depot* y en algunos supermercados, farmacias y tiendas por departamento. Puedes usar el borax para rociar en alfombras donde se acuesta tu mascota y usarlo para lavarla. Sin embargo, ambos cambian el PH de la tierra, así que no es bueno que lleguen al terreno que se usa para siembra de hortalizas.



Más de 20 usos del **BORAX** para la limpieza de hogar y control de plagas [AQUÍ](#).

Figure 14. [http://www.uprm.edu/p/campusverde/limpiadores\\_eco-amistosos](http://www.uprm.edu/p/campusverde/limpiadores_eco-amistosos)

### Aceite de Cedro: ([más info aquí](#))

(y otros aceites esenciales) una botellita de 1 onza cuesta entre \$4 a \$6 y rinde muchísimo. También venden cantidades mayores para proteger dentro y fuera del hogar, ver [aquí](#).

- **Repelente de Mosquitos:** Disuelve 10-15 gotitas de **aceite de cedro** (cedarwood oil) en 1/2 taza de agua, 1/3 taza de alcohol y 1/4 taza aceite vegetal como almendras u oliva, dentro de una botella rociadora. Le da un olor a madera que no le gusta a los insectos. Es seguro para niños y mascotas, pero no rocíe en los ojos ni cerca de la boca. Sirve para aliviar salpulado de piel (rash). Puedes añadir unas gotitas **adicionales aceite de menta (peppermint), lavanda, limoncillo y/o eucalipto** para aumentar la gama de insectos que repele además de los mosquitos. Tan efectivos como el DEET pero sin afectar tu salud.
- **Ácaros en la cama:** Rocíe la misma solución de repelente en la cama. Deje que se seque, olerá a madera durante unos días. Puede añadir gotitas de aceite puro de menta o lavanda que también son anti-gérmenes y tienen una suave fragancia. El cedro mata los ácaros que causan picor en la noche que se alimentan con fragmentos de piel que sueltan los humanos en los matres. Es bueno limpiar el colchón con vacuum frecuentemente. Sirve para aliviar salpulado de piel (rash).
- **Piojos:** Use la misma solución de repelente de mosquitos. Mata larvas, y huevos de piojos. No causa irritación, asma ni alergías, pues no es tóxico a los humanos. Se puede añadir al champú y al acondicionador.
- **Termitas:** Disuelva 1 cucharadita gotitas de aceite de cedro en 1/2 taza aceite de limoncillo u otro aceite, y rocíe o aplique con brocha en la madera para protegerla de las termitas.
- **Pulgas y Garrapatas:** Pon unas cuantas gotitas (no más) de esta mezcla en el **collar de tu perro**. Mezcla bien 2 cucharaditas de aceite vegetal (el de almendras contiene sulfuro el cual ayuda más aún) con 10 a 25 gotas de aceite palmerosa (*Rose Geranium essential oil*) o de cedro, limoncillo, eucalipto, romero o mezcla de varios. **Para los gatos no se debe usar aceite de palmerosa o cedro ya que los gatos se lamen y estos aceites no son comestibles.** Para los gatos usa los otros aceites.
  - Use una solución de agua, jabón líquido con base vegetal o champú herbal y unas gotas de Aceite puro de palmarosa, "Peppermint" o de eucalipto.
  - Para **gatos y perros**, mezcla 1/2 cdta de vinagre de manzana,y/o turmeric y 1/2 diente de ajo majado (no más) en la comida...esto hará que la sangre tenga mal olor y ayuente a las pulgas y garrapatas. También puede untar aceites esenciales diluidos en aceite de oliva, siempre y cuando el aceite sea comestible ya que los gatos se lamen. Puede usar aceite de romero, limón, clavos.
  - Pase la aspiradora en alfombras donde su perro suele estar y lave con **Borax (ácido bórico)** disuelto en agua tibia. El Borax ayuente las garrapadas, pulgas, piojos y ácaros.



\* Nunca use aceite de cedro, palmerosa o eucalipto para los gatos pues no son comestibles .



### Insecticidas para el Jardín:

10 Funguicidas y Pesticidas Naturales [aquí](#)



Mantén un jardín **libre de insectos** sin echarle venenos químicos como pesticidas que matan insectos buenos, abejas y dañan nuestra salud. Hay muchas soluciones que ofrece la [Agricultura Orgánica](#), pero aquí menciono sólo algunas.

\*Ver también [Insecticidas de plantas Ecoamistosos \(Entomología\)](#).

Figure 15. [http://www.uprm.edu/p/campusverde/insecticidas\\_eco-amistosos](http://www.uprm.edu/p/campusverde/insecticidas_eco-amistosos)

Campus Verde te invita a:

# ¡Eco-Vivir!

[Version [pdf](#)]

...es Vivir Verdemente! Es cambiar nuestros patrones de consumo y buscar alternativas más verdes, éticas y naturales a cada servicio y producto que puedas imaginar. A comprar más sabiamente, consumir menos, desperdiciar menos, pensar acerca de las consecuencias de nuestras compras. A reducir nuestro impacto en el planeta y en nuestros compañeros haciendo decisiones que son mejores para nosotros, mejores para el ambiente y mejores para todos los habitantes del globo.<sup>1</sup>

"We have to shift our emphasis from economic efficiency and materialism towards a sustainable quality of life and to healing of our society, of our people and our ecological systems." Janet Holmes a Court (1943 to present), Australian businesswoman.

## ¡Come orgánico!

¡No comes pesticidas! (ni herbicidas, insecticidas, ni fertilizantes artificiales.)



Hace unos 100 años, todos los alimentos eran orgánicos; sin pesticidas ni fertilizantes químicos.

- Los fertilizantes orgánicos, al no ser tan procesados y ser más naturales, no queman la planta.
- Los pesticidas (plaguicidas) y herbicidas son químicos que contienen muchos tóxicos que afectan el sistema nervioso, y dañan la salud, el terreno, la atmósfera y contaminan cuerpos de agua. Estos químicos se pasan a los frutos y de ahí a comida, cosméticos y a la ropa hecha con plantas que contienen pesticidas. Muchos pesticidas contienen bromuro (Br), el cual es 50 veces más fuerte que el CFC en dañar la capa de ozono, y esto a su vez empeora el calentamiento global de la atmósfera.
- Además, los pesticidas pueden matar abejas y han sido relacionados junto con insecticidas al Síndrome de Colapso de Colmenas (CCS por sus siglas en inglés) lo cual a su vez contribuye a la declinación de polinización de las plantas.
- El insecticida neo-nicotina, ataca el sistema inmunológico, en sistema nervioso, afecta la memoria y desorienta a las abejas.

## Alimentos Orgánico!

Alternativas eco-amistosas son usar fertilizantes naturales (composta), plaguicidas naturales (como el que se hace con Neem), TerraCycle, el cual se hace con excreta de lombrices, y rotación de siembra, entre otras.

- Evita los monocultivos.
- Haz composta: trae tus bolsas de grama y hojas a la Finca Alzamora en el RUM; ahí se usa para composta, la cual está a la venta, o prepara composta en tu hogar.



<http://www.abarrataldea.org/manual.htm>

<http://www.ideashuertopencasa.com/wp-content/uploads/2013/07/consejos-para-compost-hacer-compost1.jpg>

Figure 16. [http://www.uprm.edu/p/campusverde/vive\\_verdemente](http://www.uprm.edu/p/campusverde/vive_verdemente)

## Telas orgánicas:



- El algodón consume 1/5 parte del pesticida de todo el planeta! Quiere decir que no debes olvidar lavar la ropa antes de ponértela si está hecha de algodón u otra tela que no sea orgánica. Sin embargo, aún así, estás echando esos químicos por el acueducto, y finalmente terminan contaminando nuestros cuerpos de agua. Han sido asociados al mal de Parkinson.
- Cada vez se consiguen en más y más comercios en Puerto Rico. Lee las etiquetas.
- Los productos sintéticos, como el rayón y el poliéster, provienen del petróleo, y producen muchas emisiones en el proceso de fabricación.

## Telas orgánicas:

Para tu salud y la salud del planeta busca alternativas como:

- Algodón Orgánico- es regado por lluvia y fertilizado con composta, sin químicos.
- Bambú – es siempre orgánico, crece rápidamente absorbiendo mucho oxígeno. Crece sin ser regado y es naturalmente anti-bacterial.
- Cáñamo (hemp)- es orgánico, protege de rayos UV y anti-bacterial. Tampoco necesita de sistema de riego.
- Otras: modal, material reciclado, tencel, jute, seda, soja...



## Productos orgánicos para el cuidado de la piel:

Usa productos orgánicos para el cuidado personal:

- Repelente de mosquitos (ver receta natural [aquí](#))
- Lociones
- Jabones
- Champú
- Cosméticos
- Sábanas y frisas

Están disponibles cada vez en más supermercados, farmacias y tiendas en todo Puerto Rico. También se pueden encontrar en el Internet.

[www.RMBarry.com](http://www.RMBarry.com)

- Consigue productos agrícolas orgánicos a buen precio en las plazas agro-ecológicas por todo Puerto Rico, de agricultores locales. Ej. en la plaza de Rincón todos los domingos de 8am - 12pm. También se consiguen en algunas tiendas como Sam's Club y Pueblo, Freshmart y el Natural Food Center de la academia adventista, entre otros.
- Los productos Burt's Bees, no sólo están hechos sin petróleo, sino que también están embotellados en envases hechos con plástico 70% reciclado post-consumidor.



\*Descubre que ingredientes químicos que debes evitar en los productos [AQUÍ](#): Guía de Cosméticos Saludables

## Productos orgánicos para la limpieza del hogar:

Usa productos de limpieza que no dañen el entorno natural.

- Evita usar clorox, Lysol, Lestoil y otros productos petroquímicos que dañan el ambiente y a la larga nuestra salud y el entorno natural (fauna, flora, cuerpos de agua), causando asma, alergias y otras enfermedades.
- Puedes hacer tus propios productos de limpieza, económicamente y muy efectivos. Ver recetas de productos de Limpieza [aquí](#).



- Estos productos se encuentran en tiendas locales, y en Natural Food Centers como el de la escuela Adventista de Mayaguez, barrio Cuba, por la luz del Sam's Club hacia el este.

\* Descubre que ingredientes químicos que debes evitar en los productos de limpieza en el hogar [AQUÍ](#): Guía de limpiadores saludables

Figure 17. [http://www.uprm.edu/p/campusverde/vive\\_verdemente](http://www.uprm.edu/p/campusverde/vive_verdemente)

Membresía verde y eventos en: [www.uprm.edu/eventosverdes](http://www.uprm.edu/eventosverdes)

Contact us at:  
[campusverde@uprm.edu](mailto:campusverde@uprm.edu)



Únete al  
movimiento  
Campus Verde  
Colegial

# CAMPUS VERDE COLEGIAL

*Campus Verde*  
Universidad de Puerto Rico - Recinto Universitario de Mayagüez

Email: [campusverde@uprm.edu](mailto:campusverde@uprm.edu)

<http://campusverde.uprm.edu>

 Campus Verde Colegial

 CampusVerdeUPRM



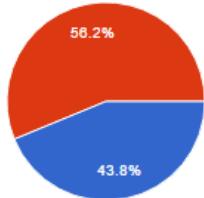




## XV. Appendix A:

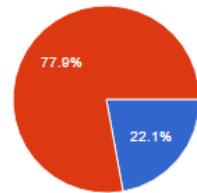
### 2016 Smoking Survey Results

¿Sabías que se liberan 4,000 distintos tipos de toxinas si tiras las colillas a la grama o el entorno?



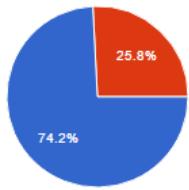
Yes 190 43.8%  
No 244 56.2%

¿Sabías que un hogar promedio en EEUU aunque no fume, paga, sin saberlo, unos \$650 anuales en impuestos para cubrir los costos de servicios médicos a fumadores?



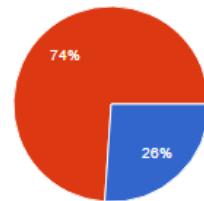
Yes 96 22.1%  
No 338 77.9%

¿Sabías al dejar de fumar puedes ahorrar en promedio unos \$1,500 anualmente, y más aún, tendrás ahorros en primas de seguros, salud, dry cleaning y otros?



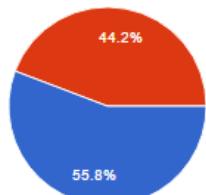
Yes 322 74.2%  
No 112 25.8%

¿Sabías que se pierde un árbol por cada 300 cigarrillos?



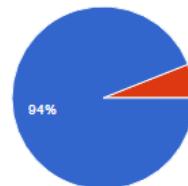
Yes 113 26%  
No 321 74%

¿Sabías entre 25%-33% de los fuegos son causados por colillas o cigarrillos, ocasionando en ocasiones muertes y daños en propiedad?



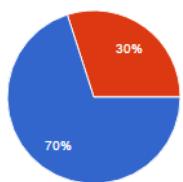
Yes 242 55.8%  
No 192 44.2%

¿Sabías que el Fumado de segundas manos afecta la salud de los demás y contamina el aire y puede causar asma?



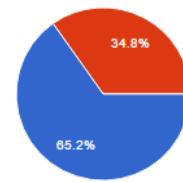
Yes 408 94%  
No 26 6%

¿Sabías que los ingredientes que causan cáncer en los cigarrillos se van a tu cuerpo, al de tus familiares y amigos y a la fauna y flora (se cuelan en sistemas de agua cuando llueve en los vertederos), según reporte de FDA?



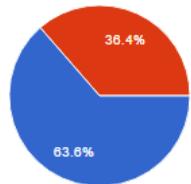
Yes 304 70%  
No 130 30%

¿Sabías que se usan muchos químicos para cultivar las plantas de tabaco, (plaguicidas que aumentan el hueco en la Capa de Ozono, y fertilizantes que causan Calentamiento Global y los Insecticidas que matan reptiles e insectos necesarios como las abejas) ?



Yes 283 65.2%  
No 151 34.8%

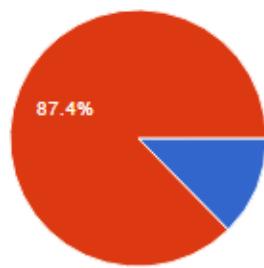
¿Sabías que las colillas de cigarrillo no se pueden reciclar?



Yes 276 63.6%  
No 158 36.4%

## 2016 Survey Hygiene and toilet paper Results. How to use it correctly in the bathrooms of UPRM?

¿A dónde debes tirar el papel de inodoro si estás en un país en desarrollo donde no hay sistema de tratamiento de aguas negras o en un tren donde tiran los desechos a las vías?



Inodoro 102 12.6%  
Zafacón (basura) 705 87.4%

**¿A dónde debes tirar el papel de inodoro en Puerto Rico? Qué es lo más higiénico y lo mejor para el ambiente?**



Inodoro 436 54%  
Zafacón (basura) 375 46.5%

**Los inodoros de UPRM se tapan si tiras papel de inodoro**



Cierto 318 39.4%  
Falso (aunque a veces es necesario bombeo la cadena varias veces) 494 61.2%

**Por el inodoro se pueden tirar colillas, bolitas de algodón, toallas sanitarias, tampones, papel toalla, medicinas, hilo dental y toallitas húmedas de bebé o de remover maquillaje.**



Cierto 23 2.9%  
Falso 785 97.3%

## XVI. Campus Verde 2016: Overall Green Survey Results:

¿Es este tu primer año en el RUM?



¿Sabías que los enseres eléctricos siguen gastando electricidad estando apagados si permanecen conectados?



¿Desconectas los enseres eléctricos en tu oficina o salón cuando no los usas?



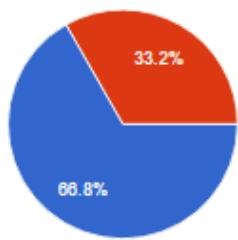
¿Reciclas tus latas y botellas plásticas en los envases de reciclaje del RUM?



¿Sabes dónde reciclar el papel y el periódico en el RUM?

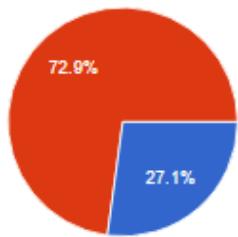


**¿Imprimes usando ambos lados del papel?**



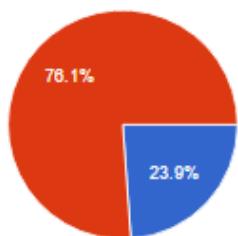
Si	474	66.8%
No	236	33.2%

**¿Sabes donde disponer de cartuchos de tinta viejos?**



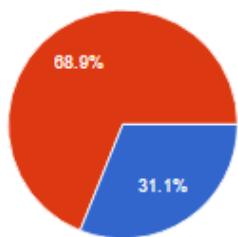
Si	193	27.1%
No	518	72.9%

**¿Sabes dónde disponer de las baterías viejas para evitar contaminación de las aguas y la naturaleza?**



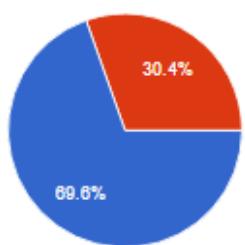
Si	170	23.9%
No	542	76.1%

**¿Sabías que puedes ahorrar unos \$100 por cada batería recargable que usas?**



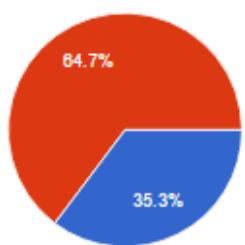
Si	220	31.1%
No	488	68.9%

**¿Sabías que el comer carne aumenta la incidencia de varios tipos de cáncer, enfermedades del corazón y genera más gases de invernadero que todos los autos y camiones en el mundo?**



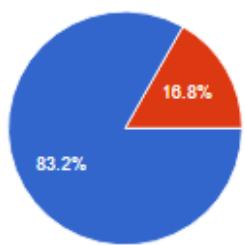
Si	492	69.6%
No	215	30.4%

**¿Sabías que algunos alimentos contienen insectos o secreciones de insectos bajo el nombre de carmine (color rojo) y confectioner's glaze (o shellac)?**



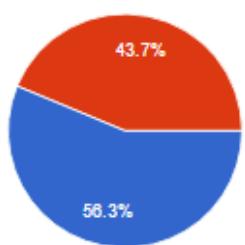
Si	249	35.3%
No	457	64.7%

**¿Sabías que la mayoría de las bacterias son inofensivas o necesarias para una vida saludable?**



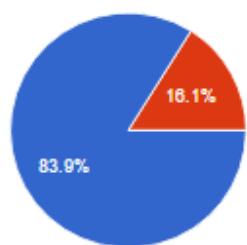
Si	590	83.2%
No	119	16.8%

**¿Sabías que los productos anti-bacteriales hacen más daño que bien y que NO son necesarios para lavarse bien las manos?**



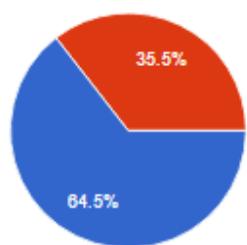
Si	400	56.3%
No	311	43.7%

**¿Te gustaría que se re-estableciera el uso de vajilla de platos reusables (mejores para la salud) en la Cafetería del RUM, cancelada debido a la falta de cooperación de los colegiales?**



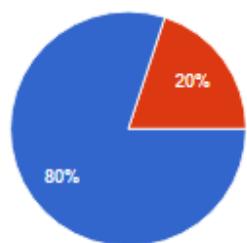
Si	596	83.9%
No	114	16.1%

**¿Conoces el impacto ambiental que causan los platos de poliestireno (Styrofoam®)?**



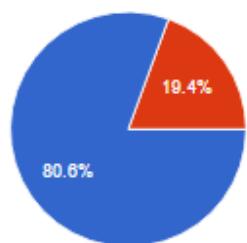
Si	456	64.5%
No	251	35.5%

**¿Conoces los beneficios a la salud de la comida, ropa y otros productos orgánicos?**



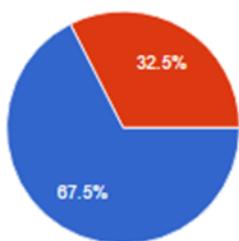
Si	565	80%
No	141	20%

**¿Conoces el efecto adverso para el planeta de los productos que no son orgánicos?**



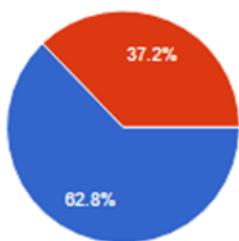
Si	572	80.6%
No	138	19.4%

**¿Utilizas diariamente termos o botellas reusables para tu bebida cuando vienes a la Universidad?**



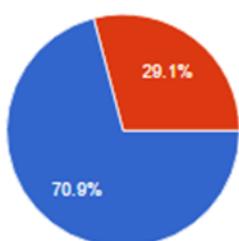
Si	480	67.5%
No	231	32.5%

**¿Sabías que la mayoría de las bolsas plásticas están hechas de petróleo?**



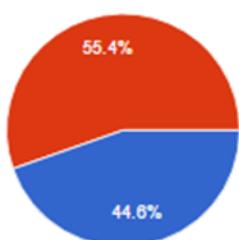
Si	446	62.8%
No	264	37.2%

**¿Sabías del posible daño a tu salud de los productos enlatados y de las botellas plásticas?**



Si	505	70.9%
No	207	29.1%

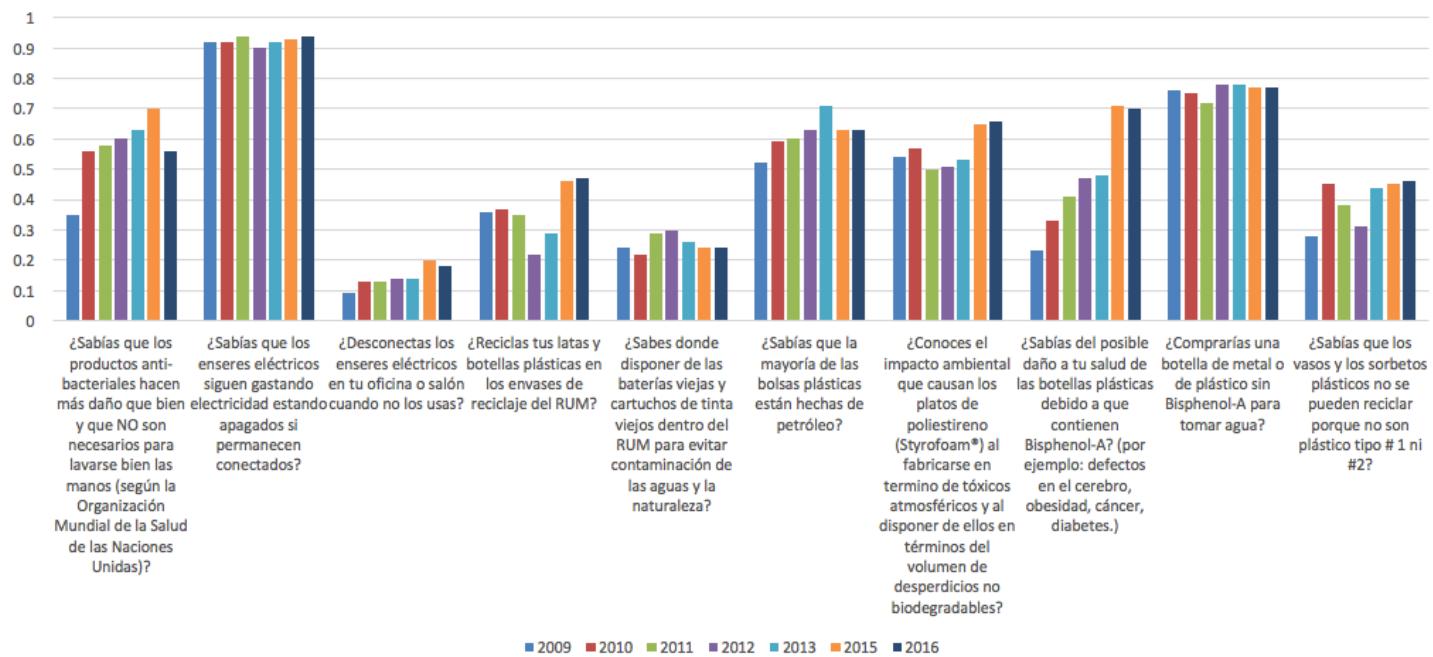
**¿Sabías que los vasos y los sorbetos plásticos NO se pueden reciclar?**



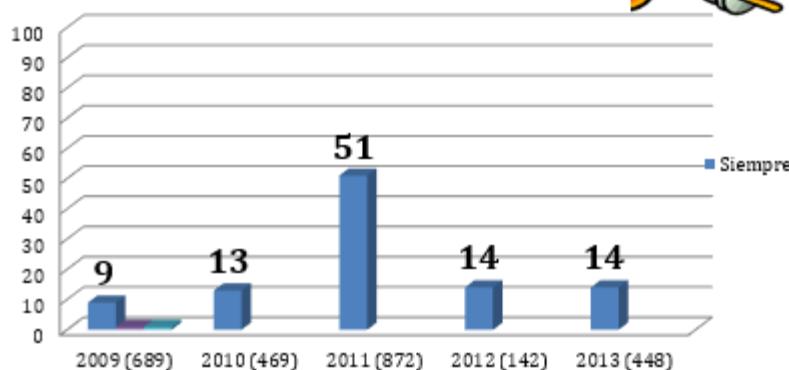
Si	317	44.6%
No	393	55.4%

**Figure 18.** Green Survey Comparison 2009-16

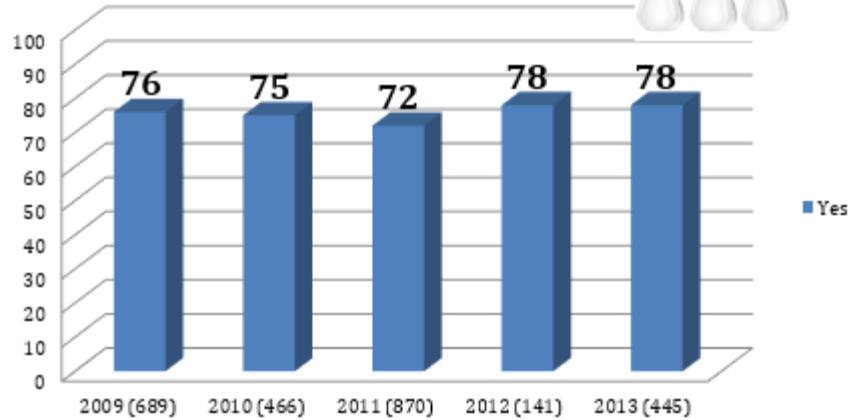
Survey Comparison 2009- 2016



**¿Desconectas los enseres eléctricos en tu oficina o salón cuando no los usas?**

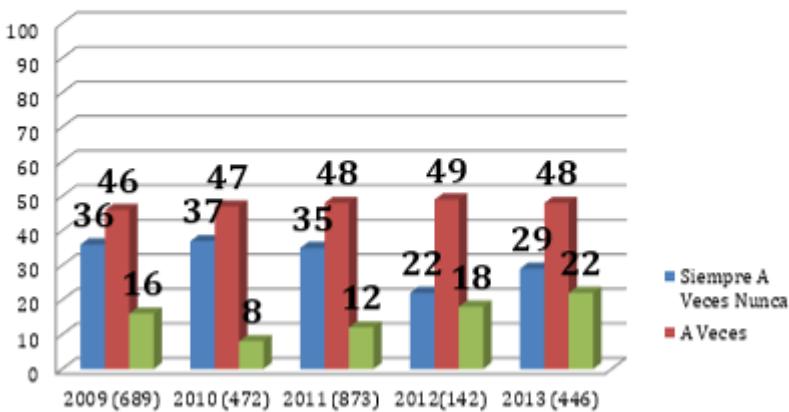


**Would you buy a reusable BPA-free water bottle?**

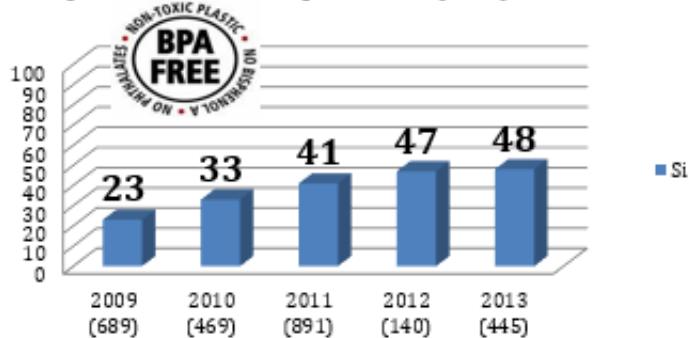


**¿Reciclas tus latas y botellas plásticas en los envases de reciclaje del RUM?**

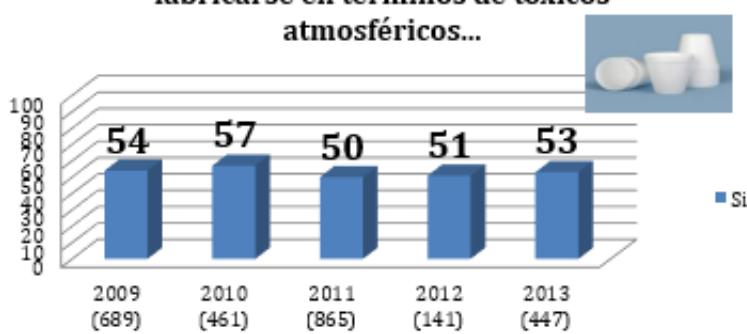
■ Siempre A  
■ Veces Nunca  
■ A Veces



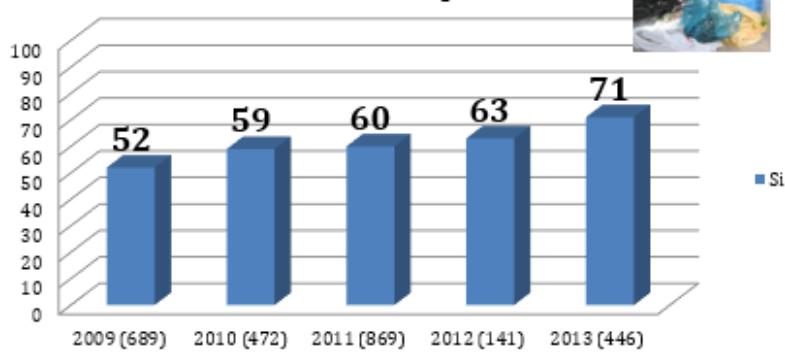
**¿Sabías del posible daño a tu salud de las botellas plásticas debido a que contienen Bisphenol-A (BPA)?**



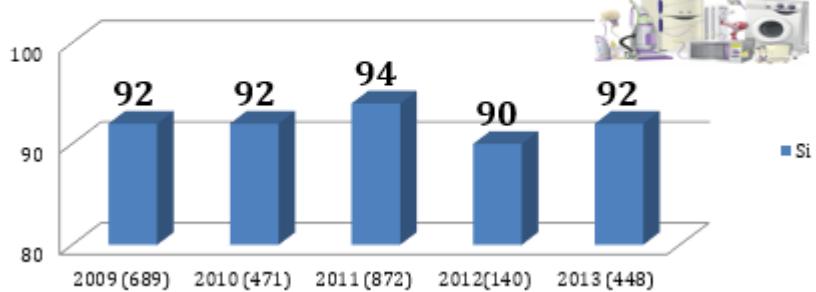
**¿Conoces el impacto ambiental que causan los platos de poliestireno (Styrofoam®) al fabricarse en términos de tóxicos atmosféricos...**



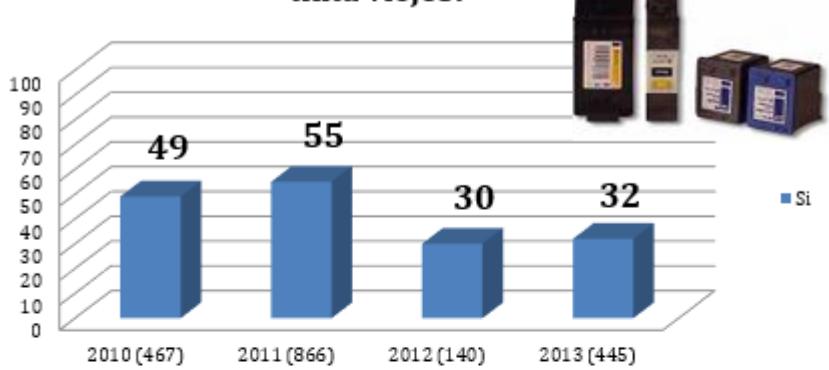
**¿Sabías que la mayoría de las bolsas plásticas están hechas de petróleo?**



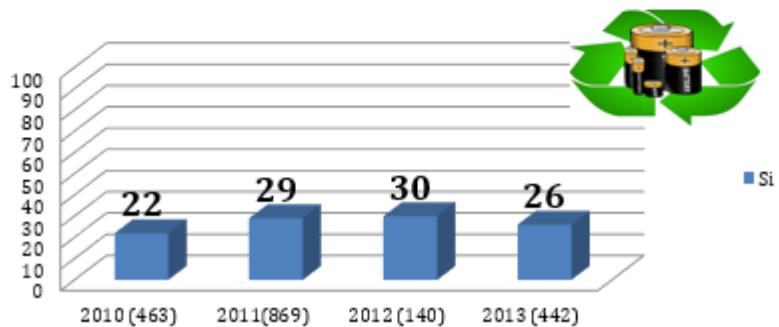
**¿Sabías que los enseres eléctricos siguen  
gastando electricidad  
estando apagados si permanecen**



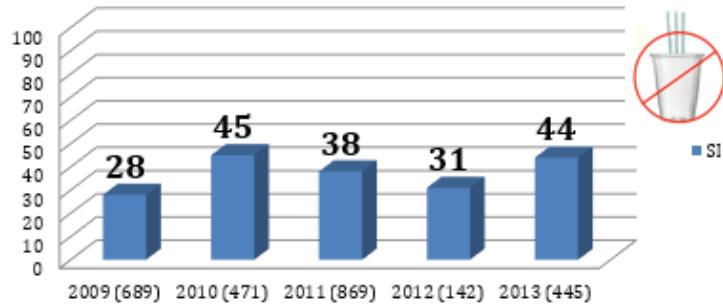
**¿Sabes donde disponer de los cartuchos de  
tinta viejos?**



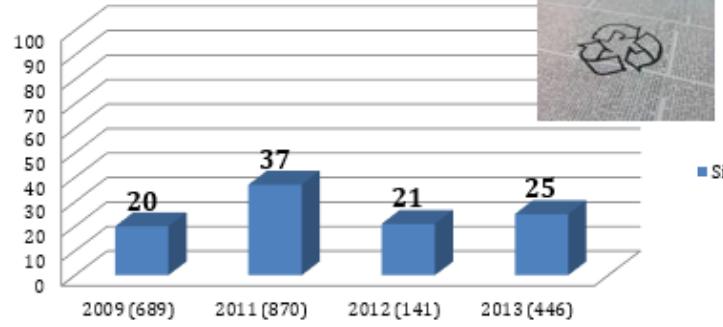
**¿Sabes dónde disponer de las baterías viejas para  
evitar  
contaminación de las aguas y la naturaleza?**



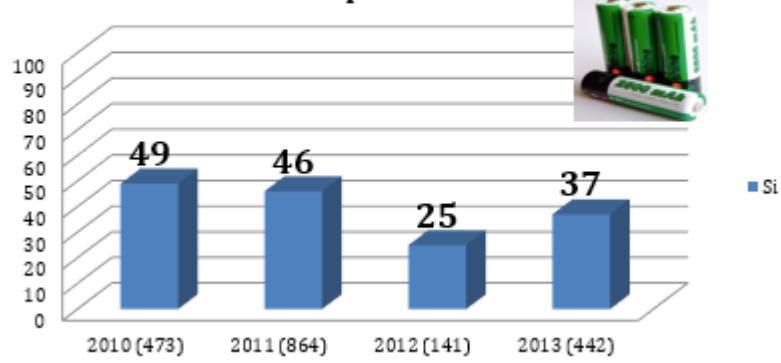
**¿Sabías que los vasos y los sorbetos plásticos NO se reciclan porque no son plástico tipo # 1 ni #2?**



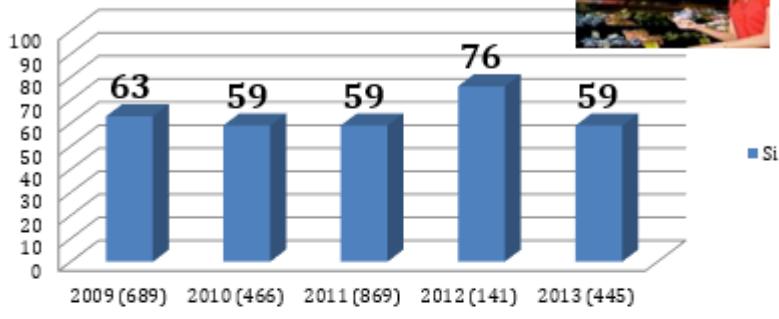
**¿Sabes donde reciclar el papel y el periódico en el RUM?**



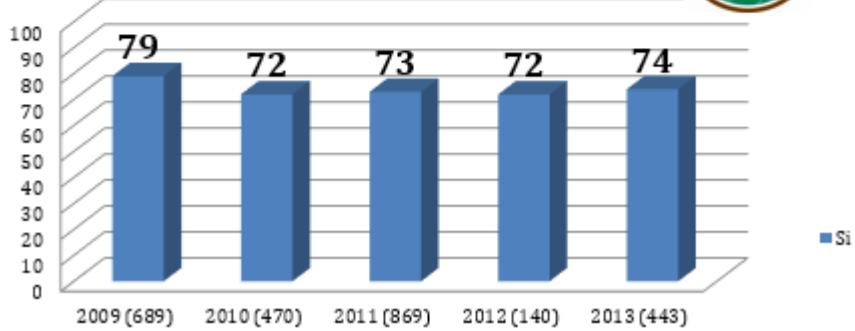
**¿Sabías que puedes ahorrar unos \$100 por cada batería recargable que usas?**



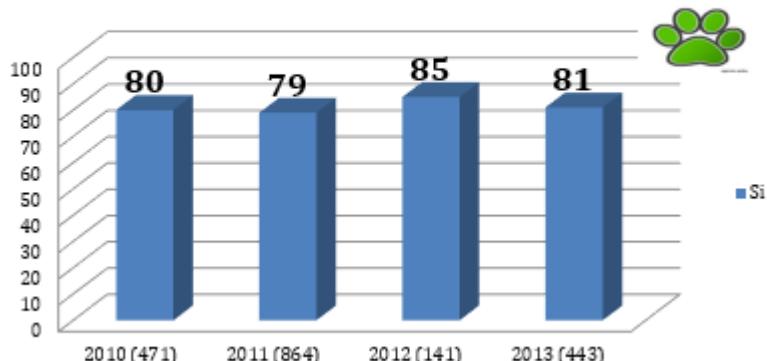
**¿Conoces los beneficios a la salud de la comida, ropa y otros productos orgánicos?**



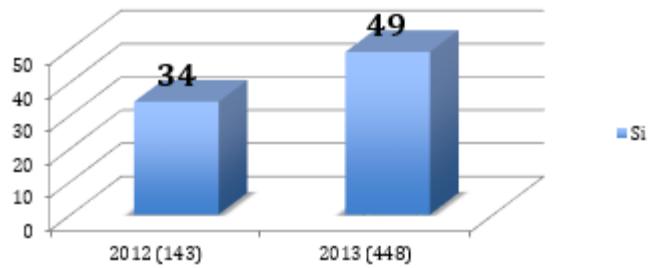
**¿Conoces el efecto adverso para el planeta de los productos que no son orgánicos?**



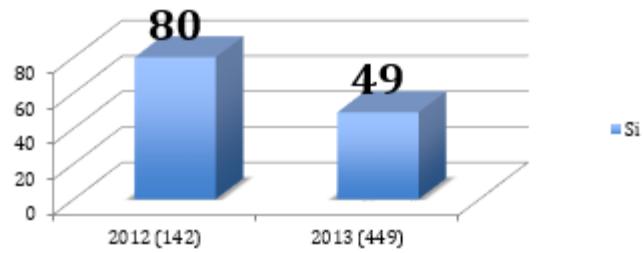
**¿Te gustaría que se re-estableciera el uso de vajilla de platos reusables (mejores para la salud) en la Cafetería...**



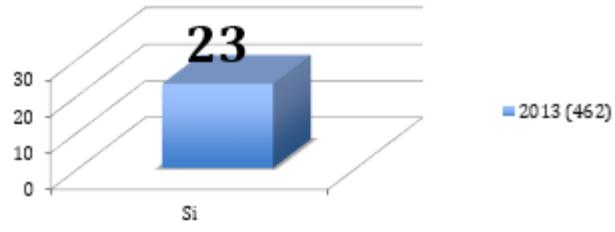
**¿Sabías que algunos champús de bebé y productos de higiene y belleza contienen ingredientes conocidos como carcinógenos?**



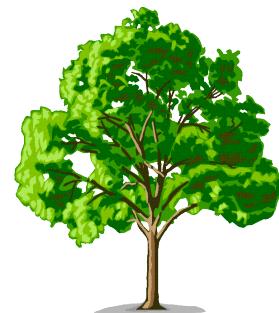
**¿Sabías que la mayoría de las baterías son inofensivas o necesarias para una vida saludable?**



**¿Sabías que algunos alimentos contienen insectos o secreciones de insectos bajo el nombre de "carmine" (color rojo) o "shellac" ?**



## XVII. Appendix B. Draft for the UPRM TREE Policy



### Política Institucional para la Conservación de los árboles y las palmas del Recinto Universitario de Mayagüez

#### Introducción

Gracias a la iniciativa de los miembros de la comunidad académica que a través de las décadas han sembrado plantas, y a la dedicación del personal encargado de cuidarlas, el Recinto Universitario de Mayagüez es hoy un atractivo jardín botánico donde crecen doscientas especies de árboles y palmas. Esta flora no sólo embellece el recinto, sino que con su sombra refresca los edificios. También atrae aves que hacen más placentera la estadía de empleados y visitantes. No menos importante, nuestra flora sirve de laboratorio para varios cursos.

Muchas universidades otorgan una alta prioridad a la conservación de su flora. Con el cuido adecuado, nuestros árboles y palmas continuarán embelleciendo el recinto y beneficiando a futuras generaciones de estudiantes, profesores, administradores y visitantes.

#### Comité de Árboles

Se establece mediante esta política un Comité de Árboles compuesto por **tres profesores** nombrados por el rector, el decano de administración o su representante y **un miembro del Departamento de Campos y Carreteras** nombrado por el director de esa dependencia. Los miembros servirán por tres años, al cabo de los cuales podrán ser nominados para otro término similar. El comité establecerá las normas para su funcionamiento y evaluará cada solicitud de poda sustancial o corte en un plazo no mayor de tres semanas luego de ser notificados sobre la intención de realizar dicho trabajo. El comité evaluará cada solicitud teniendo como una de sus prioridades más altas la conservación de los ejemplares y la protección de los miembros de la comunidad académica y de la propiedad pública y privada. El Director de Planta Física y su personal están para “implantar y ejecutar” las medidas a tono con la Política Ambiental de la UPR, de la leyes que administra Recursos Naturales y de la política interna que se apruebe para el manejo preventivo de la flora del UPRM. Adjunto ver copia de la *Política de Manejo de Áreas Verdes de la UPR* Comité de Arboles del UPRM es el que debe tener la decisión final sobre el trabajo a realizarse.

#### Mantenimiento de los árboles y las palmas

El Departamento de Campos y Carreteras establecerá un plan para la remoción anual de plantas epífitas y parásitas que por su abundancia reducen la salud y buena apariencia de los árboles. El

Comité de Árboles identificará estas plantas para que sólo se remuevan las que ocasionan daño. Esta actividad evitará que el árbol se debilite o muera y tenga que ser removido. Durante el mantenimiento rutinario de los alrededores, el personal de mantenimiento tendrá especial precaución con el uso de cortadoras de hilo (**trimmers**) que pueden remover la corteza y matar ejemplares jóvenes.

### Mitigación por la remoción de ejemplares

La remoción ocasional de un árbol o una palma por razones justificadas será mitigada mediante la siembra de diez ejemplares similares cerca o en otro lugar del recinto. Si no es posible conseguir la misma especie o si ésta es común en el recinto, el comité recomendará otras especies adecuadas para los lugares donde serán sembradas. Este proceso de mitigación puede **aprovecharse para aumentar la diversidad** de especies que crecen en el recinto.

### Siembra de ejemplares

La administración universitaria coordinará con las asociaciones estudiantiles la siembra periódica de árboles y palmas en lugares propios para dicha práctica. El Comité de Árboles asesorará en la selección de especies para asegurar que no se siembren variedades que más tarde puedan causar problemas por su impacto sobre personas o propiedad. Por esta misma razón los miembros de la comunidad académica que deseen sembrar árboles o palmas deberán solicitar permiso al Director del Departamento de Campos y Carreteras y recibarlo antes de realizar la siembra. Los árboles y las palmas sembradas sin permiso podrán ser removidas si a juicio del Comité de Árboles han sido colocadas en un lugar inapropiado para la especie o en un lugar que ha sido destinado a otro uso.

### Cultura de conservación

Para que esta política sea exitosa es necesario crear conciencia en la comunidad académica sobre la importancia que tienen los árboles y las palmas, además de los arbustos y otras plantas que crecen en el recinto. Con este propósito, el Comité de Árboles, la administración universitaria y las asociaciones estudiantiles coordinarán **actividades que eduquen e integren** la comunidad a este esfuerzo.

