

AMERICAN NUCLEAR SOCIETY



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Samuel Glasstone Annual Report

University of Puerto Rico
2020-2021



PREPARED BY

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ANS University of Puerto Rico Student Section

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University of Puerto Rico Student Section
American Nuclear Society

This document represents the American Nuclear Society University of Puerto Rico Student Section's 2021 Annual Report, as well as its first ever Samuel J. Glasstone Award application. This report was completed by the Board of Directors under the supervision of the section's Advisor Dr. Silvina Cancelos during the August 2020-May 2021 academic term. The document covers all meetings, activities, and projects completed during the same term.

Report submitted on May 15, 2021



Navigating This Document

The following document is divided into five main sections, each divided into several sub-sections, followed by an extensive Appendix. This structure is meant to facilitate the process of accessing information in a straightforward manner. Each primary section represents one of the most important aspects our section would like to emphasize; who we are, management, finances, activities, and projects. The Appendix contains examples of flyers, sample documents, and relevant links.

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Introduction

The American Nuclear Society University of Puerto Rico at Mayagüez Student Section [ANS UPRM] was established on November 20th, 2019 during the ANS annual winter meeting.

The section has since overcome various challenges, including a year long sequence of strong earthquakes and the unexpected implications of the Covid-19 pandemic. However, we have been working hard on building a successful operation that serves as a recognized reliable source of information and as a credible advocate for promoting nuclear sciences in the University of Puerto Rico (UPR).

The nuclear engineering field was strongly present in Puerto Rico and the UPR during the 1950s-1970s, after which most projects were shut down due to economic and safety concerns. We aim to re-light the passion for nuclear sciences our community once had. Our section's mission is to increase interest in and understanding of nuclear science, engineering, and technology. The section strives to educate the local community in these subjects and to correct common misconceptions deeply rooted in our society. We are greatly committed to working towards our mission by contributing to the seven primary activity areas; Public Information, Community Service, University Service, Professional Development, ANS and Nuclear Industry Support, Social Events, and Section Management.

Our plan of action for the 2020-2021 academic term has been primarily focused on student oriented services. Our main goals are to provide additional education opportunities otherwise unavailable to students in Puerto Rico, to actively participate in our student's professional development and enrichment, and to create a safe and fun environment where students have space to grow.

The UPRM does not currently have a nuclear engineering department or any nuclear engineering courses. For this reason, we are currently working on a proposal to establish a Nuclear Engineering Curricular Sequence available to all engineering and physics students at our campus.

Our student community has demonstrated a lot of interest in this program, for the society, and for nuclear sciences in general. We have seen the amount of registered students increase from 25 to an astounding 134 over the past 9 months. As the first ANS Student Section in the Caribbean, all of our registered friends of ANS and members of ANS are of hispanic descent. For this reason, we take great pride in providing free bilingual resources to facilitate access to career opportunities [i.e. Courses, Internships, Co-ops, Undergraduate Research] to this underrepresented group.

2. Section Management

2.1 Introduction to Board of Directors and Advisors

The core of any successful Student Section is its management and leaders. Leadership, honesty, responsibility, initiative, and integrity are the core values of the ANS UPRM Student Section and must be present at every level, as they are crucial characteristics that define the success of any group or organization. In order to manage the Student Section appropriately and to efficiently achieve our established mission and goals, a Board of Directors and four committees have been democratically appointed to handle all section affairs. The central Board's main purpose is to guide the Student Section towards our mission and to ensure the quality of the services provided. The Board operates under the supervision of the President and the section's Advisor, and works with all seven activity areas, focusing primarily on Section Management and University Services.

The ANS UPRM Student Section held its first ever elections on September 4th, 2020. All members of the 2020-2021 Board have made a commitment with the section to be loyal to the section's values and to carry out their function responsibly. For the 2020-2021 academic term, the Board of Directors is composed of a total of 9 members, of which four hold the title of Directors and five hold the title of Committee Officers. All Officers actively participate in the section's decision making process. Each officer manages a committee of up to 15 members, which focuses on working towards one crucial goal for the section. In terms of membership, our section currently has 10 ANS national members and 134 friends of ANS, previously referred to as local or non-official members.

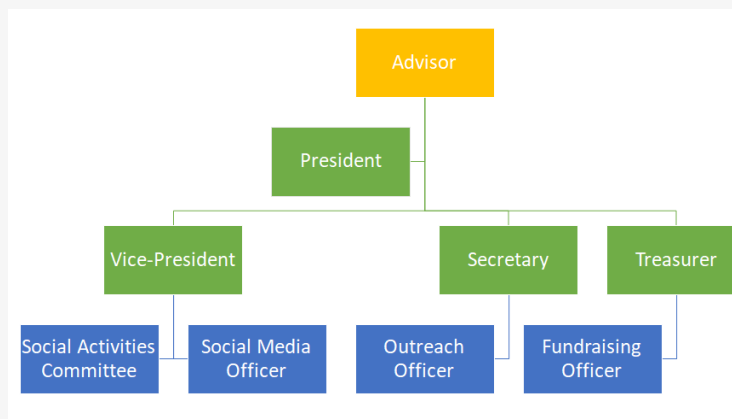


Figure 1. ANS UPRM Board of Directors Hierarchy 2020-2021

2.1.1 Advisors

For the 2020-2021 academic term, the Section had two types of non-elected advisor roles that would act as a liaison between students, ANS National, and the university faculty.

Faculty Advisor, Silvina Cancelos

The Faculty Advisor's role is to provide a direct connection between the Student Section and the university's faculty. The faculty advisor also serves as a consultant on section management and graduate level opportunities for the students. Dr. Silvina Cancelos has been the faculty advisor since 2019 and has continuously supported the growth of the Student Section. She is a professor under the Mechanical Engineering Department, the department under which our Student Section is registered at the UPRM. Dr. Silvina has a PhD. in Engineering Physics from the Rensselaer Polytechnic Institute in New York.

Student Body Advisor, Ingrid Caraballo

The Student Body Advisor's main responsibility is to aid with external communications between the Student Section and guest speakers or organizations. This position also helps with the development of outreach activities alongside the Outreach Committee. Ingrid Caraballo is a fourth year undergraduate Chemical Engineering student. She is one of the founders of the ANS UPRM Student Section and held the position of President during the 2019-2020 academic term.

2.1.2 Directors and Officers

As stated above, the section is composed of a central Board of Directors, and a set of Committees with their corresponding Committee Officers. It is important to note that all Directors are considered to be Officers, but not all Officers are Directors.

President, Joshua Acosta

The President's main responsibilities involve leading the section towards overall excellence by completing our mission and achieving our goal strategically and efficiently. The President is in charge of maintaining communication between the Student Section and ANS at a national level, maintaining a healthy relationship between the Student Section and the University of Puerto Rico,



and creating connections between the Student Section and other entities such as other student organizations and companies. They lead crucial general membership and Board of Director meetings, propose projects and motions, foment communication between all officers and committees, and fill out important paperwork. The President is also in charge of maintaining the progress of the Nuclear Engineering Curricular Sequence proposal project [INNU], which aims to establish a Nuclear Engineering course schedule in the University of Puerto Rico, Mayaguez Campus.

Joshua is a fourth year Chemical Engineering student. He co-founded the Student Section as the first Treasurer from 2019-2020. Currently, he is participating in a Co-Op position with AbbVie Pharmaceuticals where he focuses on the improvement of biopharmaceutical processes and the implementation of new machinery to increase overall production efficiency.

Vice-President, Desiré Rivera

The Vice-President's responsibilities consist of aiding the President in the management of the sections' schedule, membership, collaborations, projects, events, and progress, as well as overseeing that all officers have the tools they require to perform their tasks proficiently. They ensure that the section and officers are following the established protocols, codes of ethics, rules, and bylaws. The vice-president focuses on directly overseeing the meetings and progress of the Social Activities and Social Media Committees, as well as overseeing all the section's website, social media, and email. This position also strongly supports the development and progress of the Nuclear Engineering Curricular Sequence proposal [INNU] project.



Desiré Rivera is a fourth year Chemical Engineering student pursuing a minor in Bio-Processes. She co-founded the Student Section along with the first Board of Directors. Currently, she is the President of Come Colegial, a local poverty alleviation student organization. She is also carrying out a research project in Biomaterials for the company Cell Manufacturing Technologies.

Treasurer, Calleb Diaz

The Treasurer's responsibilities include managing the section's bank account, maintaining the section's finances up to date with all transactions and deposits, creating budgets for a variety of our activities, and writing grant proposals. The treasurer is also in charge of overseeing the Fundraising Committee and providing them with any advice for fundraisers or financial advice to optimize the income and minimize expenses from their activities.



Calleb is a third year Chemical Engineering student. He is currently part of the CISTAR research program working with Natural Gas Processing Systems to be proposed as an alternative to fossil fuels.

Secretary, Carla Rios

The Secretary's responsibilities focus on maintaining records and proper documentation of all section affairs. These include drafting minutes and agendas for all General, Officer, and Board of Director meetings. The secretary ensures that all committees obtain the required permits and fill out the required reports for each activity. She is also in charge of organizing the google drive platform, updating the section's activity calendar, answering emails, sending weekly newsletters, and drafting letters or other official documents. In addition to this, the secretary is in charge of overseeing the Professional Outreach Committee.



Carla is a fourth year Chemical Engineering student at the UPRM with exceptional passion for science and engineering.

Professional Outreach Officer, Roberto Suarez

The Professional Outreach Officer position is in charge of leading the Professional Outreach Committee and developing activities that promote and educate our community regarding nuclear sciences and technologies. The officer is in charge of

managing the committee's group chat, scheduling meetings, dividing work among the members, ensuring the quality and punctuality of the work done, updating the Board of Directors on the committee's progress, and submitting pre-activity and post-activity reports.

Roberto F. Suárez García is a third year Industrial Biotechnology student pursuing a certificate in Biochemistry. He has worked as a community volunteer for many associations, which included working with patients with severe diseases, cleaning out coasts, fundraising, and many others.



Professional Outreach Officer, Alenis Santiago

The Professional Outreach Officer position is in charge of leading the Professional Outreach Committee and developing activities that promote and educate our community regarding nuclear sciences and technologies. The officer is in charge of managing the committee's group chat, scheduling meetings, dividing work among the members, ensuring the quality and punctuality of the work done, updating the Board of Directors on the committee's progress, and submitting pre-activity and post-activity reports.



Alenis Santiago is a fourth year Chemical Engineering student pursuing a minor in Pharmaceutical Engineering. She is co-founder and vice-president of Association for the Conservation and Appreciation of Exotic Animals (ACAEEA) and the captain of the university's soccer team.

Fundraising Officer, Angel Hernandez

The Fundraising Officer is responsible for leading the Fundraising and Benefiting Activities Committee and coordinating the section's sales, fundraisers, competitions, and food drives. The officer is in charge of obtaining required permits, managing the committee's group chat, scheduling meetings, dividing work between the members, ensuring the quality and punctuality of the work done, updating the Board of

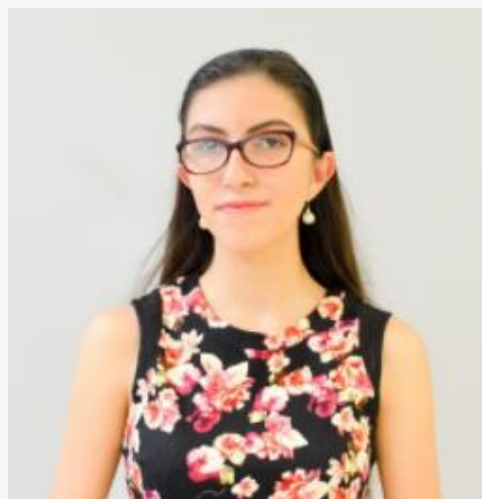
Directors on the committee's progress, and submitting pre-activity and post-activity reports. The officer is also in charge of maintaining close communications with the Treasurer when handling incoming funds or expenditures.

Ángel Hernández is a second year Civil Engineering student who is in the process of transferring to the Chemical Engineering department. He is an active member of the American Institute of Chemical Engineering (AIChE).



Social Activities Officer, Edgeliz Ramos

The Social Activities Officer is in charge of leading the Social Activities Committee, recruiting new members, and developing activities or events that foment the companionship between students. The officer is in charge of managing the committee's group chat, scheduling meetings, dividing work among the members, ensuring the quality and punctuality of the work done, updating the Board of Directors on the committee's progress, and submitting pre-activity and post-activity reports. She is tasked with creating a safe and fun environment where students can feel comfortable, and providing motivation and emotional support to the other members. The officer is also in charge of aiding the Professional Outreach Committee by providing additional professional development support through resume workshops.



Edgeliz Ramos is a fourth year Chemical Engineering student pursuing two minors in Pharmaceutical Engineering and Office Administration. She is part of the University's guidance students, where she acts as a guide that helps freshmen adapt to college life, and is also the liaison between the students and guidance counselors.

Social Media Officer, Gabriel Luque

The Social Media Officer is responsible for leading the Web Design and Social Media committee. The officer is in charge of leading all efforts regarding the management of the section's web page and social media platforms and strategically projecting the desired image of the Student Section on the internet. This management involves scheduling meetings, dividing the work equally between the committee members, ensuring that all event promotions are published on time, ensuring that all platforms are kept up to date, making stylistic decisions regarding imagery, approving all social media posts before publishing, and approving all modifications to the website.



Gabriel Luque is a 4th year Computer Engineering undergraduate student at the UPRM. He has participated in Quantum Computing Research and the NanoGames event which highlights nanotechnology application in science to the general public. He's an active member of a tuna group and has played guitar in international competitions representing Puerto Rico.

2.2 Committees

The ANS UPRM Student Section is currently divided into 4 committees which fulfill a vital role in the section's operation and development. Each committee is overseen by a member of the core Board of Directors, managed by their corresponding Committee Officer[s], and consists of up to 15 active members or friends of ANS. All committees hold 1-hour weekly meetings to plan their upcoming activities, prepare relevant documents and flyers, and update all members. After each meeting, the Committee Officers are required to update the central Board of Directors and the other Officers on the most recent decisions and plans through a Whatsapp Group Chat. Furthermore, all updates are discussed during the Officers Meetings held every three weeks.

2.2.1 Professional Outreach Committee

The Professional Outreach Committee focuses primarily on achieving our mission and vision directly by hosting, coordinating, and promoting professional development workshops and educational seminars directly related to nuclear science and technologies. These include technical webinars presented by the Nuclear Alternative Project, independent webinars presented by other professionals, Career Days, and

recruitment sessions. The academic and professional growth of our students and the Student Section is the main goal of all of these activities. All outreach activities are open to ANS members, friends of ANS, UPR students, and the general community with the exception of the activities conducted through our K-12 program.

The committee is also tasked with educating our next generation of nuclear engineers through our K-12 program. This program consists of compiling a group of bilingual powerpoint presentations, experiments and demonstrations, books, activities, and other audiovisual resources for K-12 students. This program is still under development, as our presentations and resources are still being developed by the committee members. The project is expected to officially launch in August of 2021, through a series of virtual seminars held at various public and private schools.

In addition to activities, daily fun facts, infographics, powerpoint presentations, and events, the committee is also in charge of pursuing all outreach and educational long term projects, such as the Nuclear Engineering Curricular Sequence proposal [INNU] and the release of short educational videos or documentaries that can be used as future references. They represent the Student Section at national events such as Nuclear Science Week and other competitions. The primary activity areas related to this committee are Public Information, University Service, Professional Development, and ANS and Nuclear Industry Support. At the time of this report, the committee is composed of 6 members and friends of ANS led by two Outreach Officers, Roberto Suarez and Alenis Santiago. The Committee is overseen by the Secretary, Carla Rios; the President, Joshua Acosta; and the Student Body Advisor, Ingrid Caraballo.

2.2.2 Funding and Benefitting Activities Committee

The Funding and Benefitting Activities Committee is in charge of all fundraising activities, donations, and grant applications. The primary focus of the group is to support the progress towards our mission indirectly, by ensuring that the section has enough funds for high quality outreach and social activities. They coordinate, manage, and promote all sales and fundraisers carried out by the section. Besides raising funds, the committee is also in charge of the section's expenses and budgeting. They handle the section's T-shirts and uniforms, as well as the end of the year initiation.

This committee is especially important to the ANS UPRM Student Section, since the UPRM does not have a nuclear engineering department at the moment of this report, and our section does not receive any funding from our primary institution. The primary activity areas related to this committee are Social Events and Section Management. At the time of this report, the committee is composed of 1 friend of ANS led by our Fundraising Officer, Angel Hernandez. The Committee is overseen by the current Treasurer, Calleb Diaz.

2.2.3 Social Activities Committee

The Social Activities Committee focuses primarily on pursuing our mission indirectly by recruiting members, coordinating fun social activities, arranging additional professional development activities, identifying the community's needs, developing team building strategies, and engaging in community service. The committee is also in charge of strengthening our relationship with other student organizations within the university, including Women in Physics, Come Colegial, College Students Against Contamination, Students for the Exploration and Development of Space, American Chemistry Society, and Society of Women Engineers.

The primary activity areas related to this committee are University Service, Community Service, Professional Development, and Social Events. At the time of this report, the committee is composed of 7 members and friends of ANS led by our Social Activities Committee Officer, Edgeliz Ramos. The Committee is overseen by the current Vice-President, Desiré Rivera.

2.2.4 Web Design and Social Media Committee

The Web Design and Social Media Committee focuses on pursuing our mission indirectly by promoting the section and our activities through virtual platforms. The committee is in charge of handling and updating the section's website as well as all social media platforms [Facebook, Instagram, Twitter, LinkedIn, and YouTube]. They support the other committees by promoting their activities. The committee is also in charge of posting daily fun facts on all social media platforms in collaboration with the outreach committee.

The primary activity areas related to this committee are Public Information and Section Management. At the time of this report, the committee is composed of 11 members and friends of ANS led by our Web Design and Social Media Committee Officer, Gabriel Luque. The Committee is overseen by the current Vice-President, Desiré Rivera.

2.3 Membership and Demographics

During the 2020-2021 academic term, the section has recruited a total of 134 members and friends of ANS, a surprising 109 students more than the registered members and friends of ANS for the 2019-2020 academic term. Of the registered students, 10 are currently active ANS members at a national level, and 40 are considered to be active students within the section.

2.3.1 Recruitment

The recruitment of members this academic term has been executed through three different methods. The first way that students were recruited was through our General Assemblies held at the beginning of every semester, where the Student Section gets the opportunity to present itself to the student body and the general public, highlight the activities planned for the upcoming months, and answer questions. The second method was a week-long event titled Recruitment Week, which was hosted at the beginning of the spring semester. It consisted of a series of social activities and info-sessions open to all members, friends of ANS, and interested students. The third method used was mass emails promoting the Student Section to the university students and professors. These are sent through a platform the UPRM has titled “Cartero”, or “Mailman” which is used to promote academic opportunities to all students and faculty members with an email address ending in @upr.edu.

At the moment of registering as a friend of ANS, all of our recognized section members and local friends of ANS are required to fill out a short google form and provide some general demographic and academic information. They are also asked to provide contact information so that they can be added to our mailing list.

2.3.2 Demographics

The distribution of enrollment of our students is very diverse, and we have observed plenty of interest in nuclear sciences from almost every branch of STEM. Most of our members, a full 71%, are part of the Engineering Department of the university, and 25% are enrolled in a different area of STEM. Only 5% of our members and friends are pursuing business administration, art, and language studies.

Within the members enrolled in an Engineering major, 46% of them are enrolled in the Chemical Engineering curriculum, while 20% are enrolled in Mechanical Engineering. Nonetheless, we have members from all the Engineering majors provided by the university. It is important to note that the average engineering curriculum at the UPRM is 5-6 years long, so most of our students [43%] who identify as juniors and seniors are on or past their fourth year of academic study but will not necessarily be graduating in the upcoming months.

Demographically speaking, our section presents some unusual statistics when compared to other sections in the central United States. Because of our location in the Caribbean, 100% of our members and friends identify as Hispanic or of Latin-American descent. Our section also stands out for the strong presence of females in STEM, with 43% of our members and local friends of ANS identifying as female.

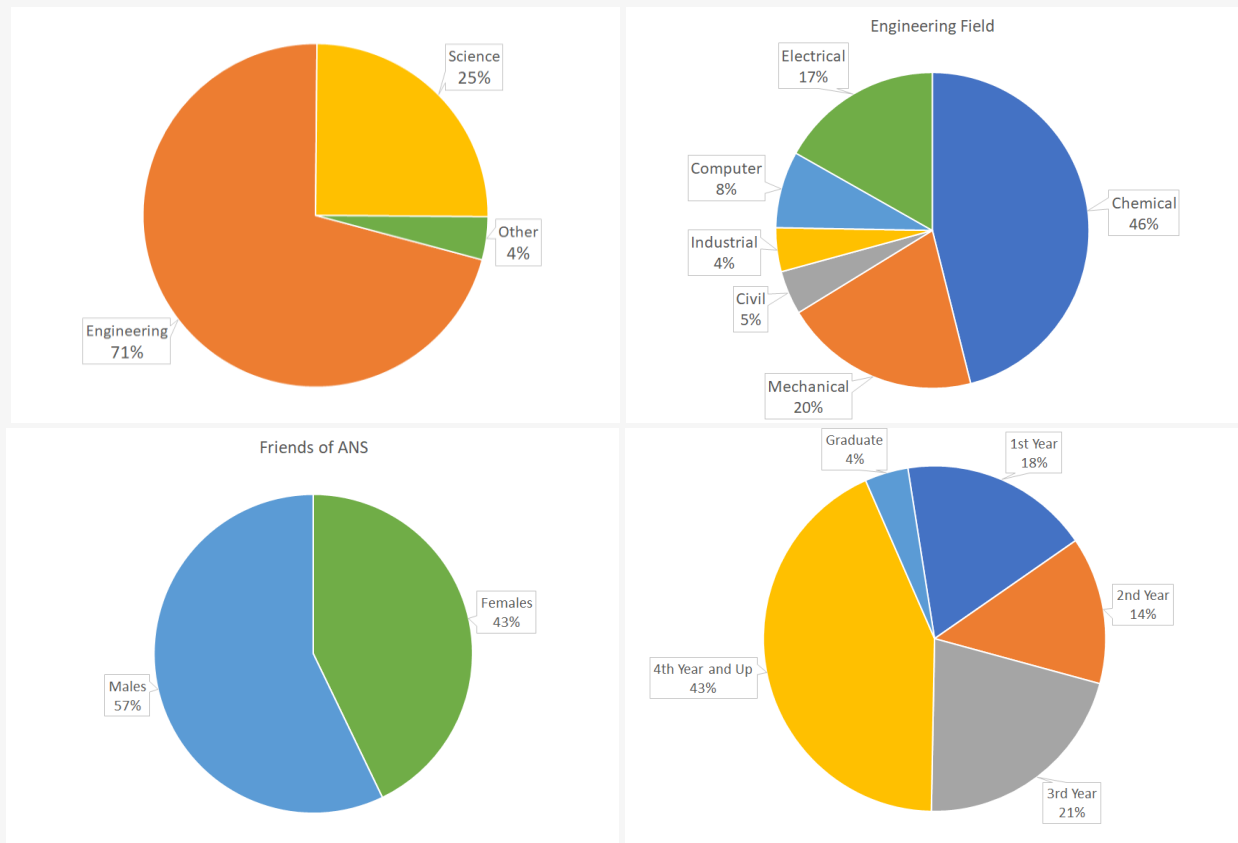


Figure 2. ANS UPRM Registered Members and Friends Demographics. Distribution of students by Major, Distribution of Engineering Students by Field, Distribution by Gender, and Distribution by Academic Year of Study.

2.3.3 Active Friends and Committee Members

Among all our friends of ANS, we currently have a total of 40 active students who participate regularly in most of our meetings, events, and activities. The criteria for a student to qualify as an active member or friend of ANS are demonstrating strong interest in the nuclear science field and assisting at least half of our meetings and events. The committees of the Student Section are primarily composed of friends of ANS that demonstrated interest in contributing to the section's mission, learning about nuclear science, being a part of our community, and participating in the planning of activities for the academic year. There are no requirements for anyone to become a member of the committees other than being a student of the UPR and being in good standing with ANS and the Student Section. All committee members are trained at the start of every semester through an official training session provided by the Board of Directors. This training consists of an introduction to the structure of the Student Section and the operation protocols established by each committee

officer and the Board of Directors. Currently, there are a total of 25 active committee members.

The active status of a committee member is determined by their assistance and participation in meetings and events. A student must have participated in at least 50% of the committee meetings and activities throughout the semester.

2.4 Operations and Meetings

2.4.1 Meetings

Effective and efficient communication between the section's leadership positions and the section's membership is crucial for the successful pursuit of our mission. Our Student Section takes this very seriously, so we have created a schedule of frequent Board of Directors and Committee meetings to address this. Due to the current Covid-19 pandemic, meetings were inevitably held online during this academic term. The platform that was used most frequently for our regular meetings was Google Meets, although on several occasions the platform Zoom was used to accommodate external guests. Some meetings were scheduled as often as once a week, while others were scheduled a few times per year, depending on their purpose and characteristics.

In order to concretely establish the purpose of each meeting, the required attendees for a meeting, and the frequency of that type of meeting, a classification system was developed. Our main types of meetings were classified as Board of Directors Meeting, Officers Meeting, Advisors Meeting, General Meeting, Committee Meeting, and External Meeting. These meetings can then be subclassified by category between Planning and Strategic Meetings, Problem Solving Meetings, and Emergency Meetings. This type and category classifications are specified on the title and invitation of every meeting in order to give all attendees a good idea of what to expect from the meeting.

Board of Directors meetings require the presence of the President, Vice-President, Treasurer, and Secretary. During these meetings, which are held biweekly, the Board has the opportunity to decide the direction in which the section will be moving and the next crucial steps to achieve these goals. Officer meetings were held once every three weeks, and required the assistance of the central Board of Directors as well as all Committee Officers. These meetings serve as a way to update everyone on the most recent developments of the section and a way to agree upon an official plan for the upcoming weeks. Advisor Meetings are held between the Board of Directors and one or both advisors to seek advice and recommendations from more experienced

personnel. Committee meetings are held each week by the Committee Officer and their corresponding committee members in order to handle all committee affairs. External meetings refer to any meeting held with a resource that is not affiliated with the section.

The frequency of our meetings and their duration varied throughout the academic year, but in general, the values were very close to the ones displayed in the chart below. All Board of Directors and General Meetings were structured in a similar manner, most often providing general information and updates about each committee, followed by any announcements or relevant information provided by the president and/or vice president. External meetings were most often coordinated with other student associations from our campus in efforts of growing our network, as well as to introduce our section to a rich diversity of students. Committee meetings were much more focused, and their main purpose was the planning and discussion of each individual committee’s activities and projects. The following table summarizes the types and frequency of the meetings held by the section.

Table 1. List of Meetings

Type	Attendees	Duration	Frequency	Total held
Board of Directors	4 Directors	1.5 hrs	Every 2 weeks	16
Officers Meeting	9 Officers	1 hr	Every 3 Weeks	12
Advisors Meeting	9 Officers 2 Advisors	~1.5 hrs	Twice per Semester	4
External Meeting	Varies	~1.5 hrs	As Needed	12
Committee Meeting	1-3 Officers 1-11 Committee Members	1 hr	Once a Week	24 per Committee

The section as a whole held a total of 140 meetings without including events, however since most of these consisted of small sub-groups within the section, the work was evenly distributed amongst everyone. Each Director and officers attends a total of approximately 40 meetings per year, while the average committee member attends about 20. It is important to note that all Directors are officers, but not all officers are Directors.

2.4.2 Code of Conduct

ANS members are committed to learning about science, engineering, and technology, as well as their applications and appropriate use. With that purpose in view, members are expected to serve and honor their careers through honesty, impartiality, respect, justice, responsibility, and integrity while keeping our community's and environment's best interest at heart.

In order to ensure the appropriate handling of section affairs in a safe and professional environment, we have created American Nuclear Society UPRM's Code of Conduct. This set of rules or guidelines must be followed by all members and friends of ANS in order to maintain good standing with the section. Failure to comply may result in a warning, removal from any officer position, a revoked membership, or any other reprimendment determined necessary by the Board of Directors. These consequences depend on the rules violated, the severity of any accusations, and the available evidence. A copy of the Code of Conduct has been attached to the end of this document, see Appendix.

2.4.3 Electronic Platforms

All official communications from the Student Section to members of ANS, friends of ANS, other organizations, university faculty, and external sources are done through the official ANS UPRM email (ansuprm@gmail.com). Only the four members of the central Board of Directors have direct access to this email account and are able to draft and send communications. Committee Officers are allowed to send official communications indirectly through this account, by sending a draft of the email they wish to send to our official email, and asking one of the Directors to forward the communication to the corresponding mailing list.

Our Student Section also has several non-official email accounts used for the handling of internal affairs. These include a social media email (anssocialmedia@gmail.com), a treasurer's email (ansuprmtreasurer@gmail.com), and a Student Body Advisor email account (ansuprmsbadvisor@gmail.com).

The official email account is also tied as the owner of Google Drive which stores all of the section's documents. The Google Drive has two primary folders, one for the central Board of Directors, and one for all Officers and Committees. Access to the corresponding folders is given to all officers at the beginning of the academic term, and access to the committee members is given as needed pertaining to the committee they participate in. Some examples of the documents that can be found in the database are officer handbooks, membership information, agendas and

minutes, flyers for activities, powerpoint presentations, official certifications and permits, financial information, and activity reports.

2.4.4 Social Media

The ANS UPRM currently has 5 official social media accounts up and running, which are used to promote the section’s events, be accessible to the public, share relevant news articles, and post daily fun facts. The platforms used during the 2020-2021 academic term were Facebook, Instagram, Twitter, LinkedIn, and YouTube. All of the social media accounts are managed by the Web Design and Social Media committee. This responsibility includes updating the banners or covers during special dates, drafting promotional posts, creating content, uploading daily fun facts, uploading infographics or content, responding to messages, accepting friend requests, and generally interacting with other accounts on each platform.



Figure 3. The student section’s logo is currently used as the profile picture in all our social media accounts.

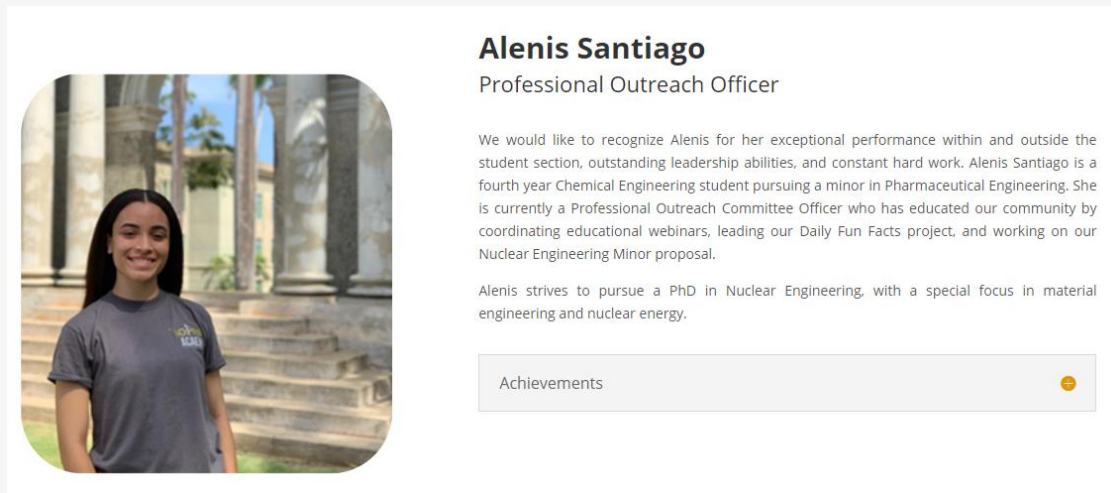
The following table summarizes the status of the section’s social media platforms. We expect our YouTube following to grow with the launch of new videos for our K-12 program during the upcoming academic term.

Table 2. Social Media Platforms and Followers

Platform	Name	Followers
Facebook	American Nuclear Society UPRM Student Section	84 Followers
Twitter	ANS_UPRM	52 Followers
Instagram	ANS_UPRM	95 Followers
LinkedIn	American Nuclear Society UPRM Student Section	67 Connections
YouTube	American Nuclear Society UPRM	9 Subscribers

2.4.5 Website

The section's website is handled entirely by the Web Design and Social Media Committee, with support from the Board of Directors. Our website can be accessed through the following link <http://student.ans.org/uprm/>. The website consists of a Home page, Officers page, Events page, Newsletter page, Get Involved page, Awards page, and a Contact Us page. The Home page contains a brief introduction to our Section, our Mission, and a brief introduction to ANS in general. The Officers page contains the information and picture of the current Board of Directors. The events page contains the promotions for all our upcoming events and is updated on a monthly basis. The Newsletter page currently contains our Student Spotlight, where we highlight the achievements of our most outstanding students. The awards page will contain information about competitions where the Student Section participates, grants, and other awards or recognitions. The Contact Us page contains general information about membership and how to join.



Alenis Santiago
Professional Outreach Officer

We would like to recognize Alenis for her exceptional performance within and outside the student section, outstanding leadership abilities, and constant hard work. Alenis Santiago is a fourth year Chemical Engineering student pursuing a minor in Pharmaceutical Engineering. She is currently a Professional Outreach Committee Officer who has educated our community by coordinating educational webinars, leading our Daily Fun Facts project, and working on our Nuclear Engineering Minor proposal.

Alenis strives to pursue a PhD in Nuclear Engineering, with a special focus in material engineering and nuclear energy.


Achievements 

Figure 4. A snippet of our Student Spotlight.

The Web Design and Social Media Committee is working on giving our website a major update and a fresh new look. Every section is currently being remodeled to include more detailed and accurate information about the section, provide a more visually appealing image layout and color contrast, and give users a more comfortable and intuitive experience.

2.4.6 Reports and Documentation

All committee officers are required to submit pre-activity reports and post-activity reports before and after each event. These reports contain a summary of the event, logistics, permits, relevant links, budgets if applicable, the amount of participating

members or students, and any relevant financial information necessary to replicate the activity in the future. These reports also give the Board of Directors a clear summary of the event proposed and the outcome of it once it took place. All reports follow the same format and are saved to our google drive platform in order to maintain organized and complete documentation.

2.5 Collaborations

2.5.1 Student Organizations

Throughout the academic year, the Student Section has interacted and collaborated with multiple other student groups that share common interests. Our primary contact with other student groups interested in nuclear sciences are Women in Physics [WIP], Students for the Exploration and Development of Space [SEDS], Alpha Astrum, and American Chemical Society [ACS]. These organizations are frequently invited to our Outreach Activities and Social Events, and our members are frequently invited to their own events.

Women in Physics is another fairly new group at our campus that embraces the presence of women in STEM. Our interactions are primarily based on social events, as movie nights are hosted monthly by one of the two groups. The movies shown are usually related to physics, nuclear sciences, mathematics, or important historical figures in STEM. Some of the movies played at these events include Radioactive, Hidden Figures, The Theory of Everything, and The Imitation Game.

Students for the Exploration and Development of Space is an organization composed of primarily physics and engineering students interested in all things space. Our collaboration primarily relies on invitations to educational webinars, professional development activities, and Among Us game nights. Together, ANS and SEDS are exploring the applications of nuclear science and technologies in space exploration.

ACS is an organization involved in several branches of chemistry and related sciences, and they have an extraordinary K-12 outreach program in Mayaguez. Alpha Astrum is a group of students within the aerospace industry that provide their students with technical experience by designing liquid fuel and solid fuel rocket engines and participating in various NASA competitions. Our Student Section is collaborating with both groups to design a more complete K-12 Outreach program set to launch in August 2021.

Another important connection of our section is “Come Colegial”, which roughly translates to “Eat, Collegiate”. This student organization provides free groceries and free meals to students in need. We at ANS UPRM believe that all students need a safe and stable environment where their basic needs are met, in order to thrive and succeed as professionals. To support this cause, most of our community service activities throughout this academic term were carried out in collaboration with this group.

Our most recent connection is Triple C, also known as “Colegiales Contra la Contaminación” which translates to “College Students Against Contamination”. Their mission is to lower contamination in and around our campus and to mitigate global warming as much as possible. Our collaborations with Triple C revolve around promoting eco-friendly behaviors and educating our community about their carbon footprint. Our section strongly believes in being environmentally friendly, so this year we decided to celebrate Earth Month with our friends at Triple C through our green thumb challenge on social media.

2.5.2 Industry - Nuclear Alternative Project

Since the founding of the Student Section, we have had frequent communication with the Nuclear Alternativa Project (NAP). NAP is a non-profit organization composed of Puerto Rican engineers who strive to educate Puerto Rico about advanced nuclear reactors and nuclear energy. They try to have as much contact as possible with the general public to bring information about the possibility of switching to a more reliable source of energy for the island.

Both NAP and ANS UPRM have similar goals about educating the public about the benefits of nuclear sciences to a modern society. NAP has supported our Student Section constantly by providing their help with obtaining professional resources, inviting students to educational webinars, and pushing our section into the light of a bigger audience within Puerto Rico. We have meetings with the Leadership Board of NAP at least twice per semester to update them on our projects and general status and to support each other in the pursuit of our common goals.

2.5.3 Arecibo Observatory

The Arecibo Observatory [AO] is an NSF owned facility in the town of Arecibo, Puerto Rico. The observatory housed the famous Arecibo Telescope built in 1963, which consisted of a spherical reflector dish with a diameter of 1,000 ft built into a natural sinkhole, with a steerable receiver and radar transmitter apparatus mounted on

cables 492 ft above the dish. The telescope was the world's largest single-aperture telescope for over 50 years, and one of the only telescopes of that size to be able to both emit and receive signals.

During the year 2020, while still recovering from 2017's hurricane Maria's effects, Puerto Rico suffered a series of strong earthquakes. Both events caused severe damage to the island's overall infrastructure, including the Arecibo Observatory. This led to the breaking of several of the cables that held up the structure over the course of a few months. While the telescope was in critical condition, a group of engineering students from the UPR founded an activist group called Save The AO, with the mission of spreading awareness of the issue and motivating the relevant authorities into taking action to save the structure.

On December 1st, 2020 the Arecibo Observatory's main radio telescope finally collapsed. This event was a tragedy for the scientific community both in Puerto Rico and world wide. After this event, our Student Section decided to join the movement to spread awareness about the Arecibo Observatory and to encourage scientists, companies, and government entities everywhere to rebuild this magnificent structure. Ever since then, our Student Section has openly supported the Save The AO activist group as well as the Next Generation Arecibo Telescope [NGAT] White Paper. We are in constant communication with scientists and professors that worked in research at the AO and look forward to hosting a series of educational seminars regarding radio telescopes in the upcoming months.

3. Financial Report

The ANS UPRM's finances are handled by the section's treasurer, Calleb Diaz, and the Fundraising and Benefitting Activities Committee. The treasurer directly receives monetary donations and payments, keeps an organized record of all income and expenses, and manages the section's bank account. The Fundraising and Benefitting Activities Committee is in charge of organizing all fundraisers for the student organizations and collecting donations for community service activities. Our Student Section does not receive funding from the University of Puerto Rico and as of May 2021 has not received any monetary grants, so the only source of income for the 2020-2021 academic year were the activities carried out by the committee. Thankfully, almost all of the section's social and outreach activities were conducted with little to no expense to the association. For the period between September 2020 and May 2021 the ANS UPRM Student Section had a net profit of \$213.05.

3.1 Fundraisers and Benefitting Activities

Come Colegial Thanksgiving Lunch

In November of 2020, our Student Section held its first fundraising activity. This event consisted of a food drive, where we were collecting both food and monetary donations to host a free thanksgiving lunch for the general UPRM student community in collaboration with American Medical Student Association [AMSA] and Come Colegial. Our section collected a total of \$150 worth of food and monetary donations for this activity, and we were able to provide 182 free Thanksgiving meals to the students of the UPRM campus.

Cake Roll Sale

In February of 2021, the section carried out a Brazo Gitano sale. A Brazo Gitano is a Puerto Rican version of the traditional spanish cake roll native to Mayaguez. The sale was announced on social media, our website, through email, and through our group chats. Members were asked to fill out a google form to place their orders and pay in advance. A full 97 units were sold at a price of \$6 each, for a total profit of \$242.50 dollars.



Figure 5. Brazo Gitano sale poster.

Come Colegial Mid-Semester Lunch

The third event was another collaboration with Come Colegial. The event also consisted of a food drive, where both food and monetary donations were collected. A total of \$130 worth of food and monetary donations were collected, and the Student Section donated \$30 for the cause. In this activity, we were able to donate 100 free warm meals to UPRM students.

Table 3. Summary of the 2020-2021 Fundraisers and Expenses

Section Funding Source	Date	Amount
Cake Roll Fundraiser	Feb 11-27, 2021	\$582.00
Food Drive Donations	Nov 17-24, 2020 Mar 11-18, 2021	\$292.87
T-Shirt and Sticker Sale	Ongoing	-
Total Section Income:		\$874.87
Authorized Section Expenditures		Amount
Recruitment Week - Theory of Everything Movie Night Movie Rental	Feb 24, 2021	\$4.45
Cake Roll Fundraising - Cost of Goods Sold	Feb 27, 2021	\$339.50

Food Drive Collaborations with Come Colegial (282 meals donated)	Nov 24, 2020 Mar 18, 2021	\$317.87
T-Shirt and Sticker Fundraiser - Cost of Goods	Ongoing	-
Total Section Expenditures:		\$661.82
Net Profit:		\$213.05

Income		Cost of Goods Sold		Operating Expenses		Net Profit
\$874.87	-	\$339.50	-	\$322.32	=	\$213.05

In summary, during the 2020-2021 academic year the section collected a total of \$874 in sales and donations, and spent a total of \$661 in fundraiser supplies, free meals for students, and social activities supplies. The remaining \$213 will be used to purchase materials for upcoming fundraisers and outreach activities. These numbers will change in the upcoming week, as we have a T-Shirt and Sticker Sale currently ongoing, and the final cost and profit are yet to be determined. Our upcoming fundraiser will most likely be a Drive-In Cinema, where we will sell entrance tickets and traditional cinema delights for a drive-in theater.

Once the section obtains sufficient funds, we plan to invest in our K-12 Outreach program which is set to launch in August. Due to the pandemic, classes are still primarily online. This is why we would like to purchase high quality microphones, cameras, video editing software, and experiment materials to produce high quality videos showcasing experimental demonstrations related to nuclear science for middle school and high school students. Other future projects we aim to invest in are seminars and college-level outreach activities, materials for the INNU project, professional development seminars for our members, a virtual reality pizza party, and a field trip to the historical BONUS Reactor Museum site in Rincón to learn about one of the first prototype nuclear power plants [once it is reasonably safe to do so].

4. Events

4.1 Introduction

This academic year, all courses were held in a fully remote online learning mode by the University of Puerto Rico for all courses. Due to the pandemic, no in-campus group interactions were allowed to protect the health of all students, professors, and employees. This modus operandi brought challenges in terms of creating meaningful relationships and impactful interactions with our student body, as well as fostering a fun and educational environment for everyone. As a team, the section brainstormed ideas and created a strategic interactive online event plan to promote student participation and motivation.

Our goal was to offer a wide variety of activities that encompassed the 7 areas of service established by the ANS. Thanks to the help of our committees we were able to divide the activities and provide quality events all year round. All activities were carried out by either the Board of Directors or one of the section's committees. The Social Activities Committee focused on Social Events such as game nights and movie nights, as well as Community Service. The Outreach Committee focused on Public Information, University Service, and Industry Service through educational or Professional Development activities. The Fundraising Committee, Social Media Committee, and Board of Directors focused on supporting the section through Section Management.

4.2 List of Events Fall 2020

This section compiles all activities and events held by the ANS UPRM Student Section during the 2020-2021 academic term. The following table summarizes the events held in the Fall 2020 semester.

Table 4. Summary of First Semester Events

Event	Committee	Area of Service	Date	Attendance	Cost / Profit
El Nuevo Día Newspaper Article	Board of Directors	Section Management, Public Information	Jul 31, 2020	N/A	\$0

Nuclear Propulsion Officer Candidate Program Recruitment Session	Outreach Committee	Industry Service, Public Information, Professional Development, University Service	Aug 7, 2021	13	\$0
Radioactive Watch Party	Social Activities	Social Event	Aug 16, 2020	8	\$0
Info-Session Video Premier	Board of Directors	Section Management, Public Information	Aug 22, 2020	100 views	\$0
General Assembly	Board of Directors	Section Management, Public Information	Aug 27, 2020	28	\$0
Murder Mystery Night	Social Activities	Social Event	Aug 29, 2020	9	\$0
Elections	Board of Directors	Section Management	Sep 4, 2020	40	\$0
Student Organization Showcase	Board of Directors	Section Management, Public Information, University Service	Sep 16, 2020	4	\$0
Chemical Hearts Watch Party	Social Activities	Social Event	Sep 19, 2020	8	\$0
Resume Workshop and Review	Social Activities	Public Information, Professional Development, University Service	Sep 24, 2020	16	\$0
Career Day	Outreach Committee	Professional Development, Public Information, University Service	Oct 8, 2020	30	\$0
Nuclear Science Week Halloween Trivia Night	Social Activities	Social Event	Oct 20, 2020	16	\$0
Nuclear Science Week Space Exploration Video Premier	Outreach Committee	Public Information, University Service	Oct 23, 2020	224 views	\$0

Among Us Game Night	Social Activities	Social Event	Oct 24, 2020	20	\$0
NAP Webinar - Renewable Generation and Small Nuclear Reactors into Power Grids	Outreach Committee	Industry Service, Public Information, Professional Development, University Service	Oct 28, 2020	3.7K views	\$0
Nuclear Energy Webinar by ANS President, Dr. Dunzik-Gougar	Board of Directors	Public Information, Professional Development, University Service	Oct 29, 2020	10	\$0
Women in Nuclear Video Premiere	Outreach Committee	Public Information, University Service	Nov 10, 2020	20 views	\$0
Jackbox Game Night	Social Activities	Social Event	Nov 13, 2020	13	\$0
NAP Webinar - Spent Nuclear Fuel and High-Level Radioactive Waste Management	Outreach Committee	Industry Service, Public Information, Professional Development, University Service	Nov 17, 2020	2.2K views	\$0
Team Building Night	Social Activities	Social Event, Professional Development	Nov 21, 2020	15	\$0
Come Colegial and AMSA UPRM Free Thanksgiving Lunch	Social Activities	Community Service	Nov 24, 2020	182	\$150
NAP Webinar - NuScale SMR Nuclear Technology	Outreach Committee	Industry Service, Public Information, Professional Development, University Service	Dec 8, 2020	665 views	\$0
Holiday Ornament Competition	Social Activities	Social Event	Dec 17, 2020	69	\$0
Radioactive Holidays Party	Social Activities	Social Event	Dec 17, 2020	14	\$0

4.3 List of Events Spring 2021

This section compiles all activities and events held by the ANS UPRM Student Section during the 2020-2021 academic term. The following table summarizes the events held in the Fall 2020 semester.

Table 5. Summary of Second Semester Events

Event	Committee	Area of Service	Date	Attendance	Cost/Profit
General Assembly	Board of Directors	Section Management, Public Information	Jan 26, 2021	30	\$0
NAP Webinar - Nuclear Energy	Outreach Committee	Industry Service, Public Information, Professional Development, University Service	Jan 28, 2021	3.4K views	\$0
Committee Training Session	Board of Directors	Section Management	Jan 30, 2021	30	\$0
NAP Webinar - Nuclear Energy in the States	Outreach Committee	Industry Service, Public Information, Professional Development, University Service	Feb 17, 2021	4.1K views	\$0
Radioactive Movie Night	Social Activities	Social Event	Feb 19, 2021	13	\$0
Recruitment Week - Day 1 T-Shirt Design Competition	Fundraising Committee	Section Management, Social Event	Feb 22, 2021	26	\$0
Recruitment Week - Day 2 General Assembly	Board of Directors	Section Management, Public Information	Feb 23, 2021	30	\$0
Recruitment Week - Day 3 Theory of Everything Movie Night	Social Activities Committee	Social Event	Feb 24, 2021	6	\$4.45

NAP Webinar - Advancements in Nuclear Technologies "A Case Study in P.R."	Outreach Committee	Industry Service, Public Information, Professional Development, University Service	Feb 24, 2021	3.9K views	\$0
Recruitment Week - Day 4 INNU Info-Session	Outreach Committee	Public Information, Professional Development, University Service	Feb 25, 2021	15	\$0
Recruitment Week - Day 5 Team Building Night	Social Activities Committee	Social Event, Section Management, Professional Development	Feb 26, 2021	10	\$0
Traditional Brazo Gitano [Spanish Cake Roll] Sale	Fundraising Committee	Section Management, Social Event	Feb 27, 2021	97	\$242.50 Profit
NAP Webinar - X-energy Nuclear Reactor Technology	Outreach Committee	Industry Service, Public Information, Professional Development, University Service	Mar 4, 2021	2.5K views	\$0
NUPOC Recruitment Day	Outreach Committee	Industry Service, Public Information, Professional Development, University Service	Mar 8, 2021	12	\$0
Research Fair	Board of Directors	Public Information, University Service	Mar 12	16	\$0
Pi Day - Imitation Game Movie Night	Social Activities Committee	Social Events	Mar 14, 2021	10	\$0
NAP Webinar - GE Hitachi Small Modular Reactor	Outreach Committee	Industry Service, Public Information, Professional Development, University Service	Mar 18, 2021	2.3K views	\$0

Come Colegial Free Mid-Semester Lunch	Social Activities Committee	Community Service	Mar 18, 2021	100	\$150.00
Among Us Game Night	Social Activities Committee	Social Event	Mar 26, 2021	10	\$0
Green Thumb Challenge	Social Activities/ Social Media Committee	Social Event, Community Service	April 1, 2021	N/A	\$0
Radiation Safety Webinar	Outreach Committee	Public Information, Professional Development, University Service	April 12, 2021	20	\$0
Earth Day - Sustainable Fashion Webinar with TripleC	Social Activities Committee	Public Information, Professional Development, University Service	April 22, 2021	15	\$0
NAP Webinar - Emergency Planning for Nuclear Power Plants	Outreach Committee	Industry Service, Public Information, Professional Development, University Service	April 22, 2021	4.3K views	\$0
T-Shirt Sale	Fundraising Committee	Section Management	May 1-20, 2021	18	-

4.4 Detailed Events Fall 2020

This section compiles a description of the most important activities or events which the ANS UPRM Student Section hosted and those in which the section was invited to participate during this year.

El Nuevo Día Newspaper Article

During the first summer after the Student Section's establishment, one of the largest newspapers in Puerto Rico, El Nuevo Día, published an article about the Student Section. The article was written in Spanish and was published under the title "Crean

el primer capítulo estudiantil de ciencias nucleares en Puerto Rico”, which translates to “The first nuclear science student chapter in Puerto Rico was created”. It explains the section's mission and vision, and served as an introduction to the local community.



Figure 6. Snippet of the overview of the newspaper article.

Info-Session Video

At the beginning of every academic semester, the ANS UPRM Student Section carries out an Info-Session to recruit new members. Given the online nature of the semester, our section decided to take a different approach. Instead of hosting a Google Meets or ZOOM session, two members of the Board of Directors filmed an introductory video at the University of Puerto Rico. This video was uploaded to YouTube and shared with various science and engineering students through email and social media. The video currently has 100 views.

Movie Nights and Watch Parties

Movie nights and watch parties are held multiple times a semester by our Social Activities Committee, and serve as an easy way for students to relax and have fun. The movie selection for these activities are educational yet entertaining. Watch parties are generally held on Fridays or weekends after 6pm for the convenience of the members. Movies are live streamed for free and students have access to a live chat where they can speak to each other.

Game Nights

During the academic year, our Social Activities Committee hosted several game nights to encourage socializing, relaxation, and fun during these trying times. Maintaining a sense of camaraderie and making new friends while studying from

home is important for our student's development and mental health. Our Student Section put in the extra effort to create an energetic and positive environment to help reduce our student's stress levels. Some of our events were exclusively for friends of ANS, while others have been carried out with guests from SEDS and WIP. Some of our favorite games have included Among Us, Trivia - Kahoot, JackBox Games, and Murder Mystery Nights. Our section is currently planning a second Murder Mystery Night to conclude our academic year with our first ever initiation.



Figure 7. Poster with instructions on how to join our Among Us game nights and Murder Mystery Night flyer.

General Assemblies and Research Fair

General Assemblies have the purpose of introducing our Student Section to the UPR student body. Through a very concise PowerPoint presentation, our Board of Directors presents what is ANS, our section's mission and vision, our upcoming activities, our committees, and our ongoing projects. We make a point to emphasize the importance of our goals: to educate our community, and to dismiss any misinformation about nuclear sciences. Assemblies are of outermost importance because they aid in recruiting a considerable amount of new members at the beginning of every academic semester.

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LOCAL MEMBERSHIP

Become a friend of ANS UPRM today for FREE.

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Have fun in our game and movie nights.

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Participate in ANS internships and apply for ANS scholarships.

Attend our annual student conferences.

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<https://forms.gle/Gxyw33edAcsHWz2u9>

CHOOSE A COMMITTEE

Or ask about our projects

<p>FUNDRAISING</p> <p>Help us raise money as we raise awareness about nuclear sciences.</p> <p>Plan sales, raffles, competitions, drive-in cinemas, and other fundraisers.</p> <p>Design cool merch and T-shirts.</p>	<p>OUTREACH</p> <p>Directly pursue our mission of educating our community and raising awareness of nuclear science.</p> <p>Plan college level webinars and professional development activities.</p> <p>Host educational activities for K-12.</p>
<p>SOCIAL ACTIVITIES</p> <p>De-stress and have some fun.</p> <p>Plan game nights, movie nights, parties, and other social activities.</p> <p>Help us create a fun and safe environment for everyone.</p>	<p>SOCIAL MEDIA</p> <p>Are you good with WordPress? Help us manage our website.</p> <p>Keep our social media pages and all our friends up to date.</p> <p>Create interactive polls, posts and articles to keep our members engaged.</p>

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Participa de nuestros seminarios educativos y oportunidades de crecimiento profesional a nivel local.

Diviértete en nuestras noches de juegos y películas.

Trabaja con nuestros comités o proyectos especiales para adquirir experiencia.

MEMBRESÍA NACIONAL

La membresía nacional cuesta \$35. Utiliza nuestro código [1535-UPRM] para un descuento de get \$15.

Participa de seminarios exclusivos y oportunidades de crecimiento profesional a nivel nacional.

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Asiste a nuestra conferencia estudiantil.

LLENA NUESTRO FORMULARIO DE MEMBRESÍA

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ELIGE UN COMITÉ

O pregunta sobre de nuestros proyectos especiales.

<p>FUNDRAISING</p> <p>Ayúdanos a recaudar fondos para costear nuestras actividades.</p> <p>Planifica ventas, rifas, competencias, autocines, y otras actividades de recaudación de fondos.</p> <p>Diseña camisas, pegatinas, y otra mercancía para vender.</p>	<p>OUTREACH</p> <p>Persigue nuestra misión de crear conciencia sobre la imprtancia de la ciencia nuclear.</p> <p>Planifica seminarios universitarios y actividades de desarrollo profesional.</p> <p>Participa de actividades educativas a nivel K-12.</p>
<p>SOCIAL ACTIVITIES</p> <p>Relajate y diviértete.</p> <p>Organiza noches de juegos, noches de películas, fiestas, y otras actividades sociales.</p> <p>Ayúdanos a crear un ambiente sano y divertido para todos.</p>	<p>SOCIAL MEDIA</p> <p>Tienes experiencia con WordPress? Ayúdanos a manejar nuestra página web.</p> <p>Manten nuestras redes sociales al día.</p> <p>Crea cuestionarios interactivos, publicaciones, y artículos informativos.</p>

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Escribenos ansuprm@gmail.com

Figure 8. Infographic on how to become an ANS member or friend of ANS in English and in Spanish.

Elections

The 2020-2021 Elections were held during September to officially conclude the first Board of Directors term, since they became officers during November of 2019. The elections were held through an online platform called Electionbuddy, which ensures

the integrity and transparency of the election. Members were able to nominate themselves for the positions available and to submit a written statement of why they were interested in the position and a summary of their qualifications. A total of 42 members and friends of ANS cast their votes in these elections. Once the voting period was over, the Student Body Advisor verified the votes and an official announcement of the winners was released.

Student Organization Showcase

The University of Puerto Rico at Mayaguez hosted its first Student Organization Showcase as a fun event for all organizations to receive a spotlight during the pandemic and fully online modulated courses. This event was an initiative to expose the freshman students from the 2020 Fall term to the different groups and organizations found within the campus. The requirement for participation in the Showcase was to submit a video and presentation of the organization's mission, vision, and activity plan for the semester. This also exposed all organizations to possible donations through the university from companies or individuals. Our section participated in this event and was able to gain exposure to the freshman students through an online platform.

Resume Workshop and Review - How to Build a Better Resume

As a way to help students in the section become stronger candidates for scholarships, internships, CO-OPs, and other career development opportunities, our section hosted a Resume Workshop and Review. Attendees were highly encouraged to bring their resume or CV for feedback from our speakers during the breakout sessions. During the workshop, three different presentations with three different points of view were provided. A general introduction was provided by students from our Student Section, based on general information from trusted sources readily available online. After our introduction, two guest speakers provided their insight on how to produce a high quality resume. Lisa Marshall, from North Carolina State University, gave recommendations from an academic advisor's perspective. Jenny Gourley from the Institute of Nuclear Power Operations, discussed resume do's and don'ts from the perspective of a nuclear industry recruiter.

Towards the end of the workshop, attendees had the opportunity to break into small groups for interactive discussions and a free review of their resumes. The goal was for all students to polish their resumes for the upcoming virtual job fairs and to learn how to create a high quality eye catching resume in the future.

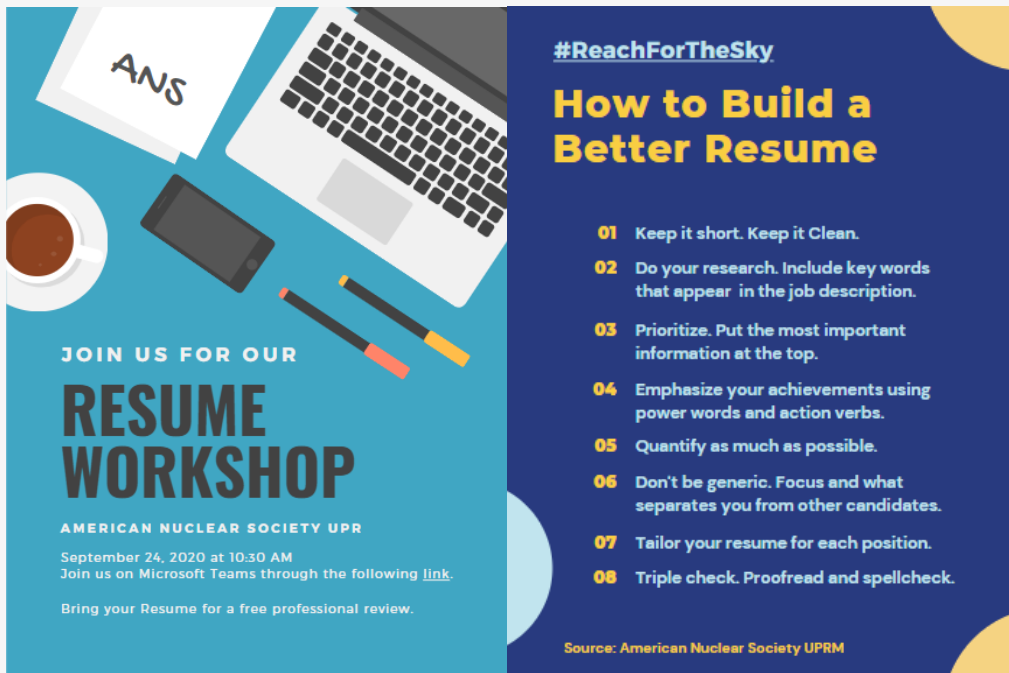


Figure 9. Promotional flyer and poster for the Resume Workshop.

Virtual Career Day

Our Student Section strives to help increase nuclear interest within the campus community. Part of this involves teaching students about various careers in the fields of nuclear science, engineering, and technology. During this 6 hour long activity, various speakers talked about what makes their line of work unique, their experiences in their field, and how they got to where they are now. This exposure to different careers in nuclear science and engineering was meant to help students decide which branch of nuclear sciences is right for them and what career opportunities are available. It also provided interested students with the opportunity to network with professionals in the field.

By bringing successful professional in the nuclear sciences field, and bringing ex-alumni of the UPRM to these activities, we strive to impact and inspire current students and members by demonstrating that their nuclear career aspirations are achievable. A short magazine was published for this event.

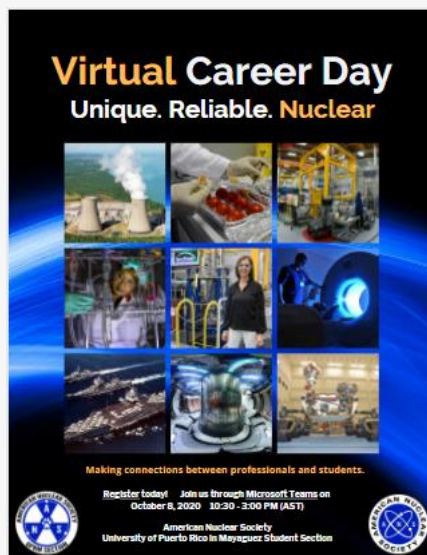


Figure 10. Career Day magazine cover.

Nuclear Science Week

The section celebrated last year's Nuclear Science Week by inviting all our members and friends to check out the NSW website and releasing an educational video about space exploration. The informative video consisted of a Zoom interview style dynamic where several puppets interviewed professionals in the field. The concept was inspired by the engaging teaching approach taken by the Muppets and Sesame Street, and their method of conveying complex subjects in a simple entertaining and educational manner that can be easily understood by all audiences. In this particular case, we also wanted to highlight some of the unique characteristics of our current day to day life while educating about nuclear applications in space exploration, which is why the ZOOM video chat interview layout was used. The video was primarily directed towards younger audiences K-8th grade students. During this week, the section also hosted a Halloween Trivia Night to test our members on their knowledge of Nuclear Sciences in Space Exploration and to have some fun.



Figure 11. Banner used on all social media for NSW.

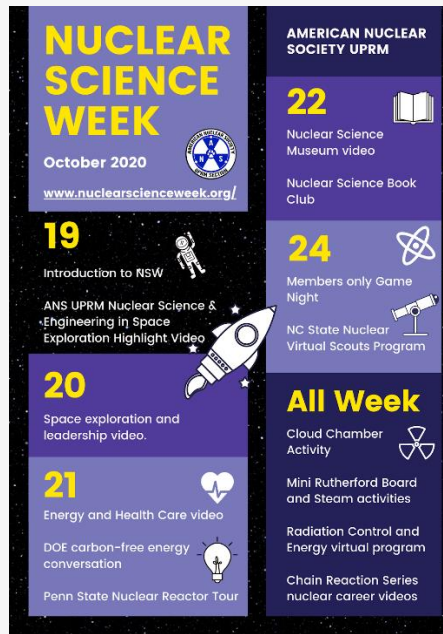


Figure 12. Flyer used to promote NSW activities and events available in the NSW website.

Nuclear Energy Webinar by ANS President, Dr. Dunzik-Gougar

It was an honor to host Dr. Dunzik-Gougar, the ANS President, at the ANS UPRM Student Section through this nuclear energy webinar. The insightful discussion gave our members and student community a more profound understanding of Nuclear Energy and how the branch is currently trying to expand and advance technologically. This was also a great opportunity to ask Dr. Dunzik-Gougar about new ways to educate our audience about the benefits of Nuclear Energy and common misconceptions of radiation. Nuclear power has maintained about a 20% share of the total annual generation of electricity in the US for three decades. It’s proven to be a safe, reliable, scalable, and clean source of electricity. Yet only one new reactor has come online in the US in the last quarter-century and new power plant closings have recently been announced.

Women in Nuclear Video Premiere

We at ANS UPRM believe it is important to inspire female students and Puerto Ricans to pursue careers within the nuclear industry. The Student Section strives to help increase female enrollment in STEM as well as female interest in the nuclear sciences and engineering within the campus local community. This video compiled a string of

positive and inspirational messages and stories from important female role models in the nuclear engineering field. To celebrate and showcase this project, we hosted a premiere event for all our members. An invitation was extended to all members and general audience of the UPRM through the university's mass mailing system "Cartero". A short magazine was created for this event.

Nuclear Alternative Project Webinars

The Nuclear Alternative Project frequently hosts many activities promoting nuclear energy to the public. Many of these activities are educational webinars where they discuss a variety of topics regarding nuclear energy advancements and the possible implementation of them in Puerto Rico. All students from our section are invited to participate in all their webinars and panels which are live streamed on social media. Some of the topics discussed on the webinars hosted during this academic term were:

- NAP Webinar - Spent Nuclear Fuel and High-Level Radioactive Waste Management
- NAP Webinar - NuScale SMR Nuclear Technology
- NAP Webinar - Renewable Generation and Small Nuclear Reactors into Power Grids
- NAP Webinar - Nuclear Energy
- NAP Webinar - Nuclear Energy in the States
- NAP Webinar - Advancements in Nuclear Technologies "A Case Study in P.R."
- NAP Webinar - X-energy Nuclear Reactor Technology
- NAP Webinar - GE Hitachi Small Modular Reactor
- NAP Webinar - Emergency Planning for Nuclear Power Plants

Team Building Nights

Throughout the year, two different Team Building Nights were carried out. The purpose of these activities was to give all members and friends a chance to get to know the new members and to expose the newcomers to the learning and fun atmosphere established in the association. The events consist of various games where the group is divided into smaller teams that compete to achieve a similar goal.



Figure 13. Flyer used to promote Team Building Nights.

One of our frequently played games, called “WIN-WIN” consists of dividing the group into two teams, who need to obtain the greatest amount of points. The game consists of 6 rounds, where each team has three minutes to pick a color, either red or black. The points awarded at the end of each round depend on the choice of both teams. If both teams choose Black, both teams win the same amount of points. If one team chooses Black, and the other team chooses Red, the team that chose Red will gain points while the team that chose Black will lose points. However, if both teams choose Red, they each lose the same amount of points. The game gets interesting as both teams try to use reverse psychology on each other, however, both teams are working towards the same goal and the game can only be won when the teams understand the meaning of teamwork and trust.

Another crowd favorite is the game ‘Aliens have landed’. The premise of the game is that aliens have landed on planet earth and they do not speak any of our languages, so each team has 20 minutes to find 5 images to explain to the aliens what our student section is about. The group is usually divided into teams of 5, and at the end of the game each team may present their images to the group along with their explanations of why the images were chosen.

All games are designed to promote teamwork and develop a friendly environment. These activities were one of our most successful events in terms of team bonding, and remain our most requested activities.

Come Colegial Free Lunches

Our Student Section recognizes the importance of fostering a safe and comfortable environment for our students to thrive both academically and professionally. For this reason, the ANS UPRM Student Section sponsored two free lunches for the general student community in collaboration with Come Colegial. Free access to food helps relieve some pressure off of students of low income, so they can focus their attention on their studies.

Our first lunch was hosted in November 2020 in collaboration with AMSA UPRM and Come Colegial. It consisted of a free traditional Thanksgiving meal for a total of 183 students. The menu was rice with pigeon peas, turkey and pulled pork, and pasta salad. Our second lunch was held in March of 2021, which consisted of a free plate rice, chicken, and pasta salad for a total of 100 students.

For both activities, our Student Section hosted a week-long food drive to recollect donations and hired a chef to prepare the meals. The donations were delivered to the chef, who delivered the prepared food to the university, where a group of Come Colegial and ANS volunteers served and distributed the meals.



Figure 14. Promotional flyer and images from our free lunches.

Radioactive Holidays party

The Radioactive Holidays Party consisted of a series of games and short activities where all registered members and friends of ANS could have fun, de-stress after finals, and celebrate the ending of the semester. During the night we had several Kahoot trivia competitions with questions about the university's history, nuclear science, and several wild cards. After the trivia, a short ceremony was held to recognize the effort of the most outstanding students and hand out certificates for outstanding effort and for winning any game nights during the semester. The night concluded with the Radioactive Ornament Contest voting and results, followed by an interactive scavenger hunt and a custom made card game. All attendees were able to socialize, get to know each other better, have fun, and get into the holiday spirit. The activity was held through a Discord Meeting on December 17, 2020 at 6:00 pm.



Figure 15. Honorable Mention and Winner of the 2020 Radioactive Holidays winter ornament competition.



Figure 16. Holiday card sent to all members and friends of ANS at the end of the year.

4.5 Detailed Events Spring 2021

Recruitment Week

The Recruitment Week was a week-long event carried out to recruit new members and friends of ANS, solidify our presence in the campus, and to network with other UPRM student organizations. The event also sought to increase participation in all committees of the Student Section. New members were invited to multiple social events to get to know others within the organization. It also served as an introduction to our most frequent endeavours, ongoing projects, and upcoming activities. The daily activities included:

- **T-Shirt Design Competition** - Members of the Student Section submitted their design ideas to be featured in our first T-Shirt. All members were given the chance to vote for their favorite designs, and the winners received a free T-Shirt.

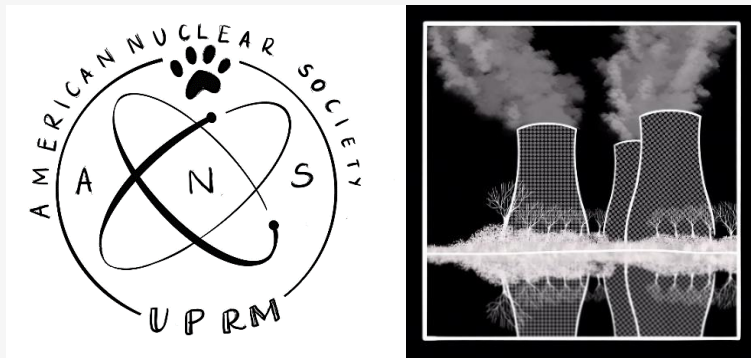


Figure 19. Winning Designs

- **General Assembly** - The main event of the week. This webinar presented an overview of Student Section purpose, goals, operations, activities, projects, and future professional development activities open for all students.
- **Movie Night** - Everyone had the opportunity to relax with other members while watching *The Theory of Everything* from the comfort of their homes to commemorate the life of the late Steven Hawking.
- **INNU Curricular Sequence Info-Session** - The Info-Session consisted of an informative powerpoint presentation and an open discussion about the Nuclear Engineering Curricular Sequence proposal and the details of all proposed courses. The event also included a brief overview of the UPRM's old

nuclear reactor and nuclear engineering program [Puerto Rico Nuclear Center].

- **Team Building Night** - This special team building game night was open to all ANS UPRM members and friends of ANS to encourage new members to get to know each other and get involved with the group. The games included: Would you rather?, Aliens have Landed!, and a quarantine inspired Bingo.



Figure 17. Social media banner used during recruitment week.



Figure 18. Flyer used to announce the week's events.

Committee Training Session

Given the sudden influx of students joining our committees and the student section in January, the Board of Directors decided to offer a Training Session for all new members. In this activity, the Board gave the committee members a thorough presentation about the section's mission, vision, goals, membership, activities,

projects, detailed plans, meeting schedules, operation mechanisms, resources, and more.



Figure 20. Snippet of the Power Point presentation offered during the Jan 2021 Training Session.

NUPOC Recruitment Day

The Professional Outreach Committee got in contact with a NAVY recruiter to offer an info-session and recruitment session for students and members. Attendees learned about opportunities offered by the Navy within the nuclear field, specifically those related to nuclear powered submarines and aircraft carriers, and got the chance to speak directly to a recruiter. The activity focused primarily on informing students about a program titled Nuclear Propulsion Candidate Program (NUPOC), which accepts undergraduate students in their junior or senior year and after graduation offers enrollment in the Navy's nuclear science courses where they can obtain a graduate degree.

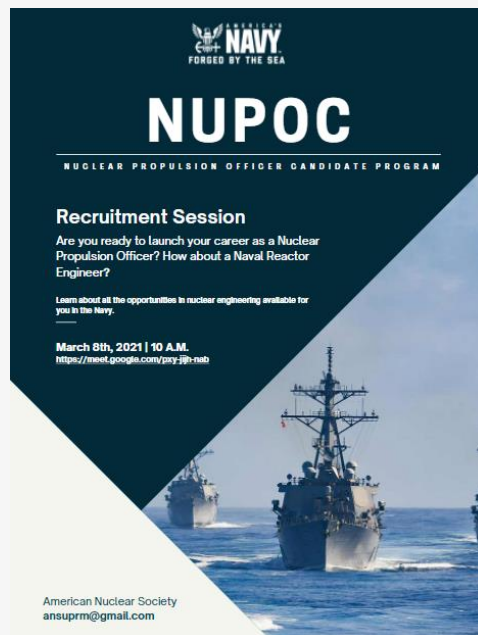


Figure 21. NUPOC Recruitment session flyer.

Accepted students can then choose one of five career paths within the Navy which include nuclear engineering working directly within a submarine, becoming a technician at an aircraft carrier, or teaching nuclear science courses to new incoming recruits. One of our members was recently accepted into this program, and is on his way to become a nuclear engineer.

The members and local community were able to learn more about different lines of work within the nuclear engineering field to which they otherwise would not have been exposed.

Green Thumb Challenge – Earth Month

Our student section highly values protecting nature and our environment, and we aim to reduce global warming as much as possible. The Green Thumb Challenge was a new initiative created to celebrate Earth Month by doing something positive for the environment. The activity consisted of a challenge format, where several members were challenged to go green throughout the month of April.

The challenge was to do something to reduce your carbon footprint, such as planting a tree or any type of plant, reusing objects, carpooling, recycling, and/or reducing waste. After completing any of these actions, members who completed the challenge were encouraged to post a picture or video of their deeds in their social media accounts using our hashtags, and tagging and challenging a friend. The hashtags assigned were #ansuprmgtc #ansuprm #greenthumb. All participations were shared through our official Instagram account in the stories section of the platform. Other student associations from the local campus, such as HerCampus UPRM, participated as well.

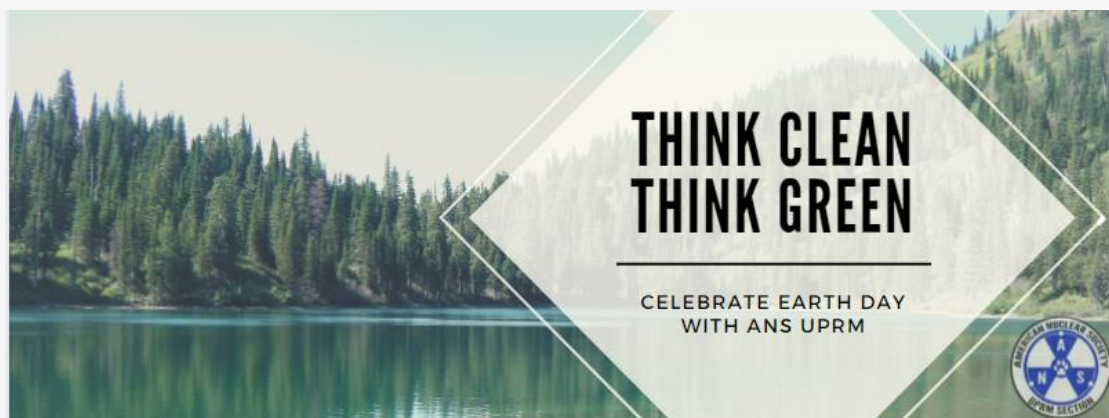


Figure 22. Snippet of animated banner used during Earth Month.

Radiation Safety Webinar

A Webinar was offered to both the local community and our members about Radiation Safety. Eng. Rivera spoke about the different types of radiation, the health implications to exposure to each type of radiation, and the respective safety measures that the industry uses to ensure the well being of their employees and the environment. Our Professional Outreach Committee members also offered an introductory presentation at the beginning of the activity, in order to introduce our attendees to the very basics of nuclear science and radiation, so the audience could be more familiarized with the information provided by the speaker.

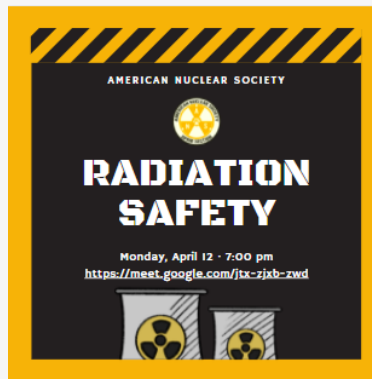


Figure 23. Radiation safety webinar flyer.

Earth Day - Sustainable Fashion Webinar with Triple C

As part of our Earth Day celebration, we partnered with another student association from our campus called “Triple C”, who is just as passionate about saving our planet. Their main goal is to bring awareness to urgent ecological issues and to promote community participation towards mitigating the damage. They offered our members an informative webinar about fast fashion and its negative impact on the environment. The activity went hand in hand with our Green Thumb Challenge. All participants were able to learn how making small changes to their everyday lives can have a big impact on the planet. The webinar also covered information regarding textile engineering.

5. Projects

5.1 Introduction

All of the section's affairs can be primarily divided into events and projects. While events are oftentimes short, one day activities, our projects consist of long term initiatives or activities that require large amounts of planning and group efforts. All projects carried out by the student section aim to pursue our mission to educate the student body and general public about nuclear sciences, engineering, and technologies throughout an extended period of time. All of these efforts contribute to creating more easily accessible information to the general public and debunking stigmas about nuclear science.

Our projects are open for anyone from the student section to participate in if they are interested, meaning that they receive support from all four committees, the Board of Directors, advisors, and other friends of ANS that are not necessarily linked to any specific committee.

5.2 List of Projects

Table 6. Summarized Projects for the 2020-2021 Academic Term

Project	Type	Date	Committee	Cost
Nuclear Engineering Curricular Sequence	Professional Development, University Service	On Going	Board of Directors	-
Women In Nuclear Video	Public Information, Professional Development	Aug 25, 2020 - Nov. 10, 2020	Outreach Committee	\$0.00

Nuclear Science Week Video	Public Information, ANS/Industry Support	Oct 19, 2020 - Oct 23, 2020	Outreach Committee	\$0.00
Nuclear Science - Fun Facts	Public Information	On Going	Outreach & Social Media Committee	\$0.00

5.3 Detailed Projects

5.3.1 Nuclear Engineering Curricular Sequence [INNU Program]

The University of Puerto Rico does not currently have a Nuclear Engineering department. While other campuses offer some nuclear medicine courses, no UPR campus offers other nuclear science, nuclear engineering, or nuclear technology courses. Our Student Section has identified over 100 students interested in pursuing some sort of nuclear science or engineering studies within our community, and we believe that these students deserve an opportunity to pursue these dreams. For these reasons, the primary project of the ANS UPRM Student Section is the development and establishment of a Nuclear Engineering Curricular Sequence in the University of Puerto Rico at Mayaguez. This project is known as INNU for its acronym in Spanish, *Ingeniería Nuclear*.

The University of Puerto Rico offered a selection of nuclear engineering courses and carried out important nuclear research during the 1950s-1970s. After this time, most projects were shut down due to economic and safety concerns. Our section aims to relight this passion by educating the community and bringing back some of these programs. The INNU project consists of demonstrating our student body's interest in nuclear sciences and presenting a set of proposals leading up to a Nuclear Engineering Curricular Sequence program at the UPRM. The INNU project initiative is an on-going long term project that currently consists of two different proposals for the UPRM and a 4 year plan divided into 4 phases.

Phase 1. Year 2020-2021

Phase 1 consisted of providing our student body with a series of orientations about career options within nuclear sciences as well as the courses that the students would be interested in taking. During this time, the section focused on developing a good standing with the student body, gathering resources, obtaining connections, and recruiting students. During this phase, the section also developed a clear idea of what we would like the program to be like. The nuclear engineering Curricular Sequence would consist of a total of 12 approved credits in any of the INNU courses of the following list, or 9 credits complimented by 3 credits of COOP in the nuclear industry. The requirement for all proposed courses will be differential equations [MATE4009].

1. *Introduction to Nuclear Science and Engineering* (3 credits). This course will serve as a general introduction to the field of nuclear sciences. It will cover material in atomic and nuclear physics, radiation, nuclear energy, nuclear reactors, radiation safety, fusion and fission.

2. *Radiological Safety and Radioactive Waste Management* (3 credits). General principles of radiation and radioactivity and their interaction with matter and biological systems will be emphasized. Specific areas include protection methodology, radiation dosimetry, systems for personnel monitoring, waste disposal procedures and regulations as well as long term risk analysis. Topics on radioactive waste management practices will include areas such as waste categories, potential sources, treatment and disposal methods, waste minimization and transportation practices. In addition, general issues or concerns on nuclear energy safety and management will be addressed.

3. *Nuclear Power Plant Engineering* (3 credits). This course will provide students with a sound understanding of nuclear energy and power plants, including nuclear fuels, cycle analysis, component design and performance, plant operation, control, economics, environmental impact, and future or emerging technologies.

4. *Nuclear Power Plant Simulator* (3 credits). This course will serve as an introduction to real world nuclear power plant operations. It will provide students the opportunity to practice operation of a nuclear power plant system on a nuclear power plant simulator. Students are expected to: gain knowledge of all major and auxiliary systems, and controls in a typical nuclear power plant; gain experience in start-up and shut-down operations of all major systems; gain experience in handling major

disturbances; get a hands-on appreciation for safe nuclear power plant operations. NuScale Power has shown interest in donating a simulator for the purpose of this course.

5. *Materials and Heat Transfer Applications in Nuclear Reactor Systems* (3 credits). The heat transfer component will focus on general thermodynamic considerations, heat generation in reactors, heat transfer from fuel elements, heat flow by conduction, heat transfer to coolants, boiling heat transfer, nuclear superheat, and thermal design of a reactor. This course will also focus on material candidates for application in different nuclear reactor components and their properties, strength requirements and other high temperature properties, interaction of these materials with radiation.

6. *Reliability and Safety Analysis* (3 credits). This course focuses on the theory and models that are used for reliability, risk, and safety analysis of large operating systems typical of the nuclear, petrochemical and chemical industry.

7. *Introduction to the Analysis and Design of Nuclear Plant Structures* (3 credits). The course will cover the required seismic analysis and corresponding design considerations needed to generate plans for construction of safe structures to house nuclear power plants.

Phase 2. Year 2021-2022

We are currently in Phase 2 of the project, which consists of demonstrating to the UPRM the volume of undergraduate students interested in pursuing nuclear engineering studies to justify the proposed program. As part of submitting this formal proposal to the university's Department of Engineering, the Student Section must prove an outstanding amount of interest from its students. Since our establishment, the ANS UPRM Student Section has been tracking the growing interest of students in taking courses in the curriculum. This is currently being done through a series of surveys, in which we identified over 108 students interested in taking nuclear science or engineering courses and determined which specific courses are in demand.

The following charts represent the results obtained from the most recent survey. The survey obtained 108 responses from active undergraduate students within our campus. Students were asked to rate their probability of enrolling in the INNU Curricular Sequence if the program is established. Students rated this likelihood on a scale from one to five, one being very unlikely, and 5 being extremely likely. A total of 79 students rated the probability of enrolling in this curricular sequence as likely, while

46 of these students rated this probability as extremely likely. Only 5 students rated their probability as unlikely, and the remaining 24 students are still neutral or undecided.

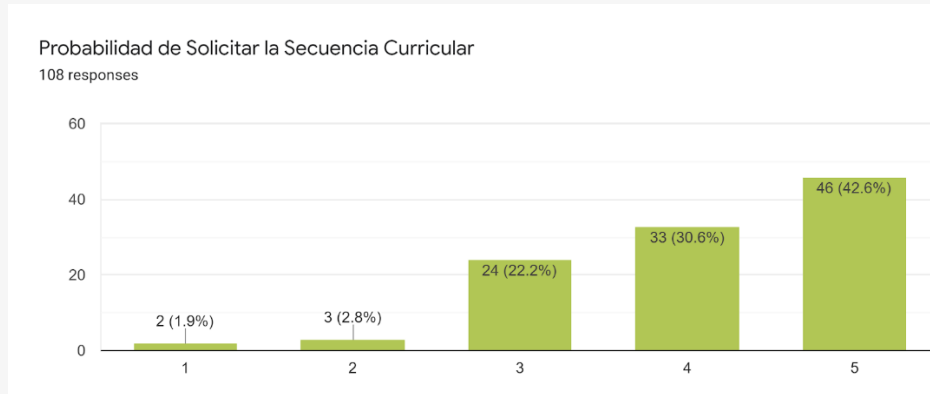


Figure 24. Self-Reported likelihood of enrolling in Curricular Sequence.

Students were also asked to rate their likelihood of enrolling in each individual course proposed by the section. The survey contained a brief description of each course, so that students could make an informed decision. The course with the most prominent interest was Introduction to Nuclear Science and Engineering, with a total of 78 rating their likelihood to take this course at a 5/5. Followed by the Nuclear Plant Engineering course with a total of 72 rating their interest with a 5.

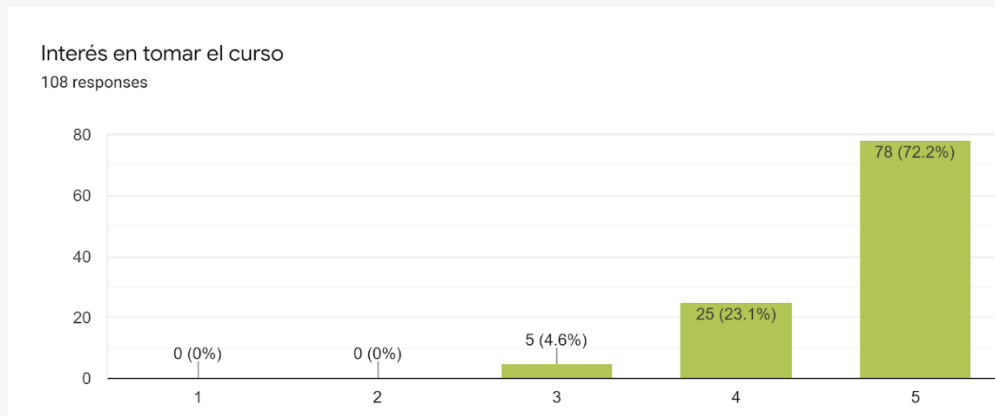


Figure 25. Self-Reported likelihood of enrolling in the Introduction to Nuclear Science and Engineering 3 credit course.

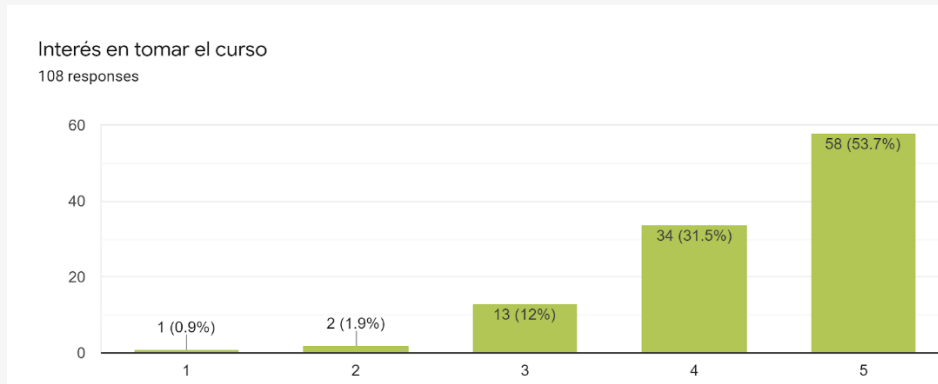


Figure 26. Self-Reported likelihood of enrolling in the Radiological Safety and Radioactive Waste Management 3 credit course.

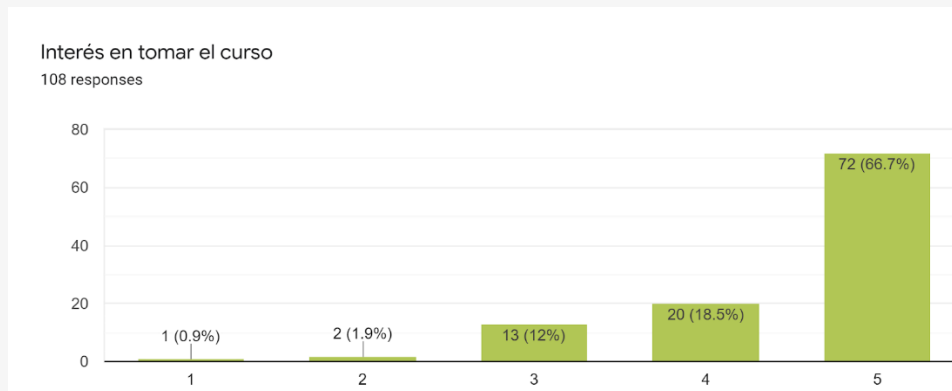


Figure 27. Self-Reported likelihood of enrolling in the Nuclear Power Plant Engineering 3 credit course.

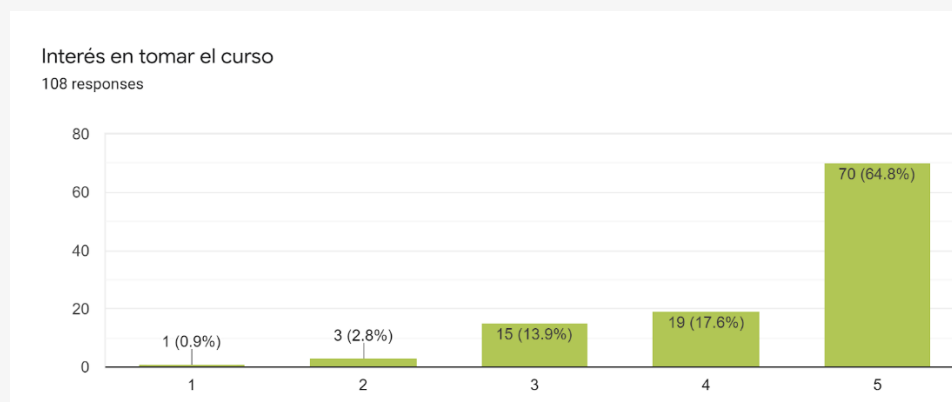


Figure 28. Self-Reported likelihood of enrolling in the Nuclear Power Plant Simulator 3 credit course.

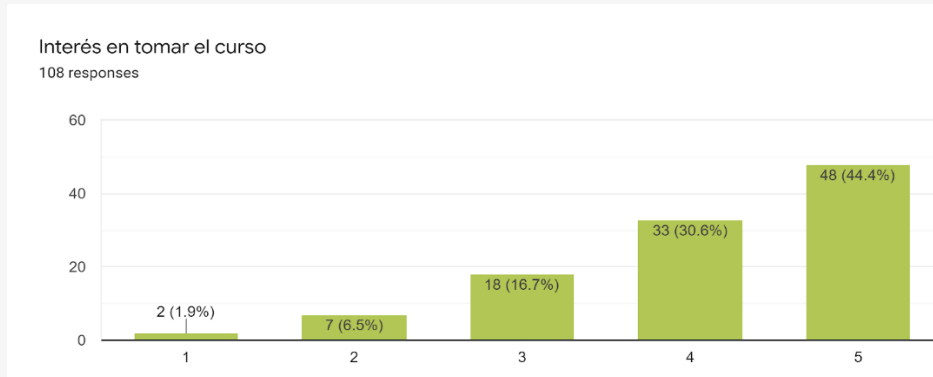


Figure 29. Self-Reported likelihood of enrolling in the Materials and Heat Transfer Applications in Nuclear Reactor Systems 3 credit course.

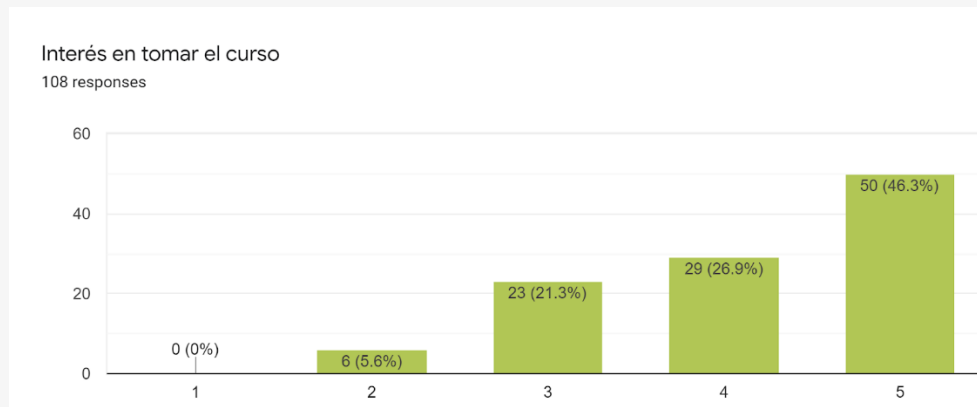


Figure 30. Self-Reported likelihood of enrolling in the Reliability and Safety Analysis 3 credit course.

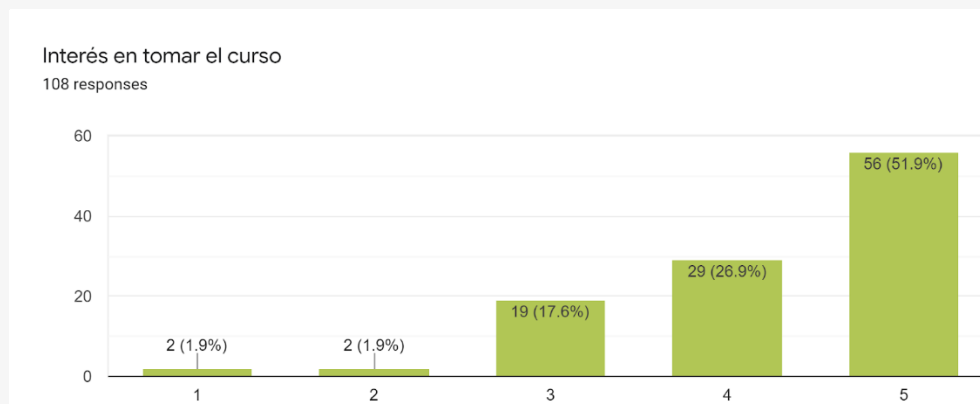


Figure 31. Self-Reported likelihood of enrolling in the Introduction to the Analysis and Design of Nuclear Plant Structures 3 credit course.

As part of the survey, all participants were asked to provide their interest in obtaining graduate degrees in Nuclear Engineering. This demonstrates a higher commitment and interest of the students to obtain education and knowledge on nuclear sciences. 29.6% of students are interested in pursuing graduate studies in nuclear engineering, while a surprising 61.1% are still undecided. These results highlight the importance of our mission, as students tend to be uncertain of these types of decisions due to lack of information. Establishing these undergraduate courses within the university would greatly benefit these students by providing them a thorough understanding of the field and creating a smoother transition into graduate schools for their Masters and Doctorate degrees.

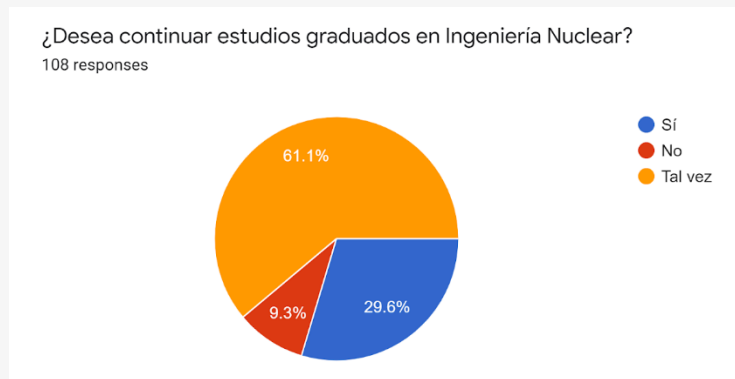


Figure 32. Students interested in pursuing graduate studies in nuclear engineering.

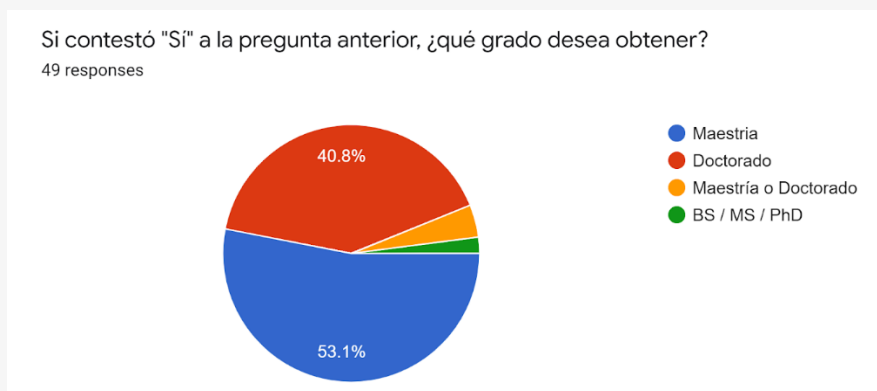


Figure 33. Degree that students are interested in pursuing.

The results obtained from this year's survey demonstrated an increase in interest for these courses compared to last year, where a total of 82 students filled out the survey. The interest in both the Student Section and in the INNU program are expected to

continue increasing at a slower rate over the following months, as the section continues to make itself known within the campus and recruit new students.

These results will be shared with the UPRM along with our first proposal. The first proposal is a short term proposal asking the university to offer two introductory nuclear engineering courses as electives open to all STEM majors. This proposal will consist of a specific request justified by the statistics from the most recent surveys which demonstrate the student's interest in the program, letters from professors interested in the initiative and willing to give the courses, the list and description of suggested courses, and other supporting information. The goal of this first proposal will be to have the university provide at least 1-2 elective courses each semester starting in January 2022.

Phase 3. Year 2022-2023

Phase 3 is conditional to the approval of the first proposal. This phase consists of performing a thorough evaluation of student enrolment and achievement in the courses being offered at the moment. If student enrollment matches the university's expectation of at least 25 students per section, and a high percentage of these students approve the courses, then a new selection of elective courses can be offered in the following semester. The section will support students enrolled in these classes by providing access to additional resources, organizing study sessions, and getting involved in their professional development.

Phase 4. Year 2023-2024

Phase 4 is conditional to the success of Phase 3. After various courses have been successfully given for at least 3 semesters, with appropriate amounts of enrollment and achievement, the student section can move on to the second proposal. This proposal would serve as an official petition to officially establish the Nuclear Engineering Curricular Sequence. The second proposal will be the official 12 credit INNU Curricular Sequence Program proposal. The goal will be to formally establish a nuclear engineering Curricular Sequence at the UPRM. This proposal is planned to be submitted at least one year after the nuclear engineering electives are offered, so that the Student Section can justify the need for the program with the statistics from the students enrolled in and approving nuclear classes.

In the future, the success of the project could imply the expansion of the program into a Nuclear Engineering bachelor's or master's degree offered by the university.

5.3.2 Women In Nuclear

The Women in Nuclear video was created with the purpose of increasing female interest in nuclear sciences and engineering within the UPRM and local community. The thirteen minute video was produced to highlight the achievements of various females in related STEM fields in an attempt to motivate young students to pursue a career of this nature. The speakers invited to participate are included below:

- Vivi Tjharg - Structural Engineer - Kennedy Space Center
- Sara Hauptman - Senior Reactor Operator Shift Supervisor - MIT Nuclear Reactor Lab
- Anne White - Professor & Head of Nuclear Science and Engineering - MIT
- Ciara Sivels - Nuclear Engineer - J.H.U. Applied Physics Laboratory
- Monica Pham - Thermal Hydraulics Engineering Student - MIT

Each speaker was asked to share their experiences in the field, what made them interested in a career in the nuclear sciences, and what their work entails. As of May 2021, this video has received over 40 views, and it can be watched through the following link: <https://youtu.be/IBGaXNkN1GI>

5.3.3 Nuclear Science Week

This year, Nuclear Science Week was celebrated from October 19th to October 23rd. To celebrate this event and embrace nuclear sciences, our Student Section focused on educating young students on the applications of nuclear science in space exploration and various careers in this field. A video was produced in collaboration with Thomas Jay Harrison, a Nuclear Propulsion expert working for NASA. The video was published to YouTube. As of May 2021, it has approximately 230 views and can be watched through the following link: <https://youtu.be/wLRW2ij2VZY>.

On the same day, a short virtual magazine was published on our website. The magazine contains general information about ANS, our Student Section, our Committees, and our Projects. The virtual magazine can be viewed in the Get Involved section of our website.



Figure 34. Special guest stars in our NSW video.



Figure 35. Snippet of our virtual magazine located in the Get Involved section of our website.

5.3.4 Fun Facts

The task of educating our student community is taken very seriously within our Student Section, and we do not rely exclusively on webinars or other synchronized activities to carry out our mission. To support these efforts, the Professional Outreach Committee has initiated a Daily Fun Facts project, where every day from Monday through Friday nuclear science fun facts are uploaded to our social media platforms. This initiative

provides a more fun and interactive, yet less time consuming way for our followers to receive this important information in bite sized amounts.

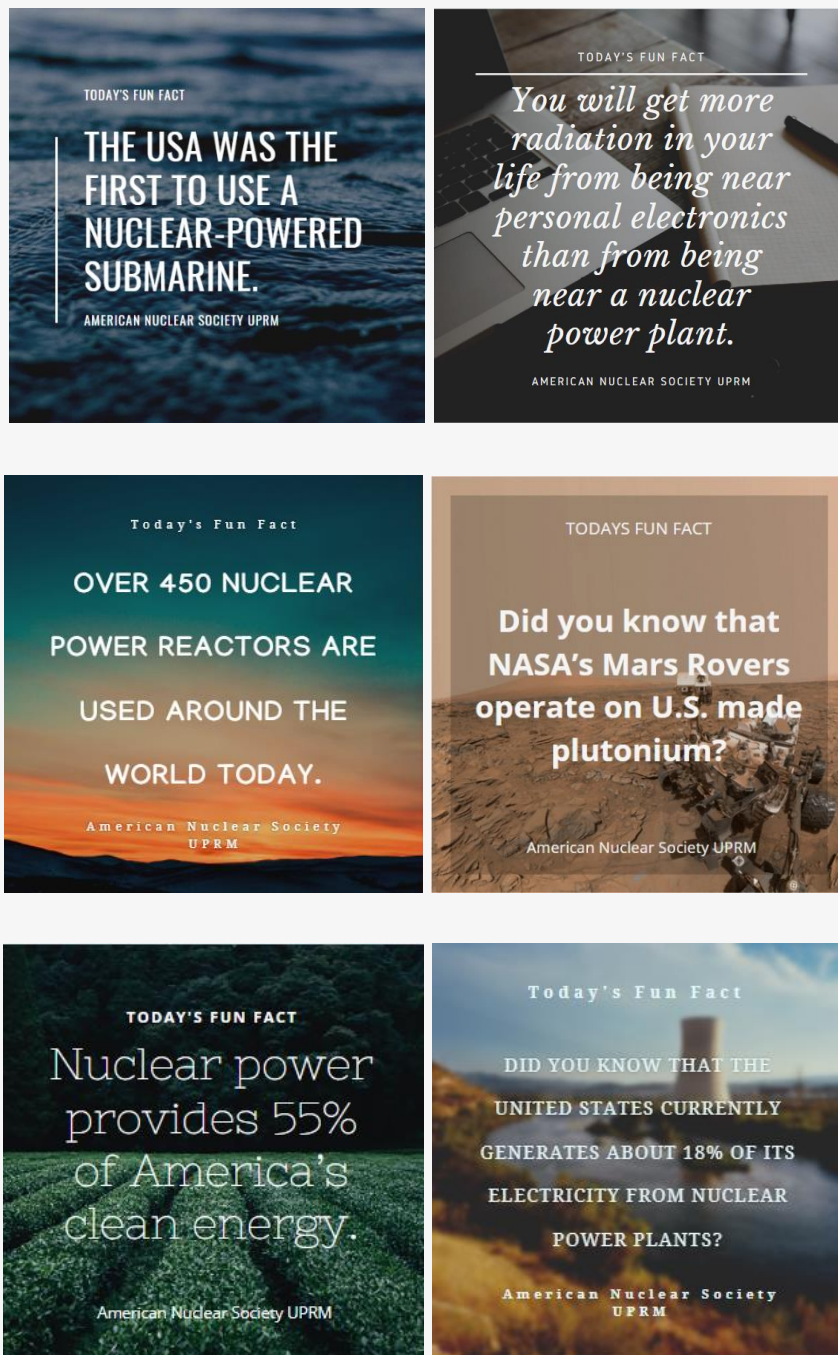


Figure 36. Sample fun facts published on social media.

6. Appendix

6.1 Relevant Links

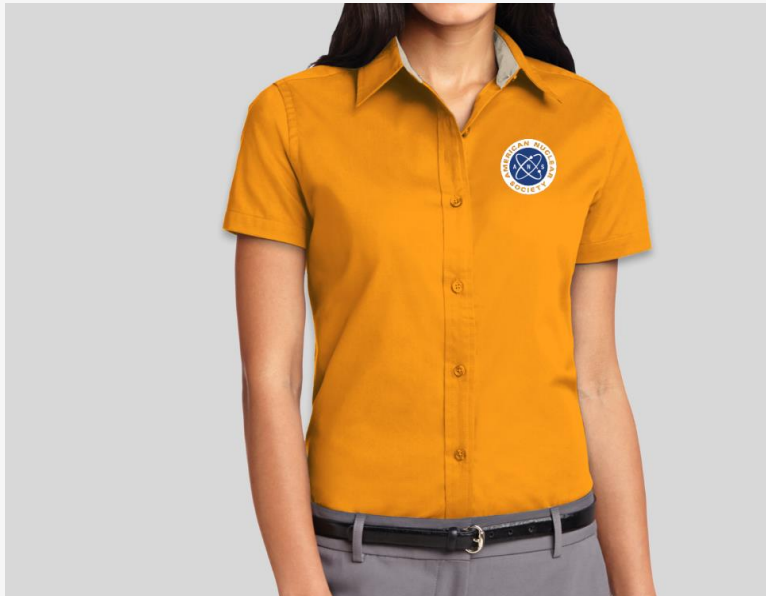
1. Newspaper Article
 - a. <https://www.elnuevodia.com/ciencia-ambiente/otros/notas/crean-el-primer-capitulo-estudiantil-de-ciencias-nucleares-en-puerto-rico/>
2. Website
 - a. <http://student.ans.org/uprm/>
3. Social Media
 - a. Facebook: <https://www.facebook.com/pages/category/Nonprofit-Organization/American-Nuclear-Society-UPRM-Student-Section-114426713637516/>
 - b. Instagram: https://www.instagram.com/ans_uprm/?hl=en
 - c. Twitter: https://twitter.com/ans_uprm?lang=en
 - d. LinkedIn: <https://pr.linkedin.com/in/american-nuclear-society-uprm-student-section-5839ab1b0>
 - e. YouTube: <https://www.youtube.com/channel/UCANAajpn7rxEXKmNixiyZog>
4. Videos
 - a. Info-Session: <https://www.youtube.com/watch?v=RVZ9GFETRS4>
 - b. Women in Nuclear: <https://www.youtube.com/watch?v=yUTktAkiFjg>
 - c. Nuclear Science Week: <https://youtu.be/wLRW2ij2VZY>.
5. Nuclear Alternative Project
 - a. <https://www.nuclearalternativeproject.org/get-involved>
6. Showcase
 - a. <https://sites.google.com/upr.edu/uprmshowcase2021/complete-list/engineering?authuser=>

6.2 Uniform and Shirts

Member/Friend of ANS T-Shirt




Board of Directors Shirt



6.3 Website

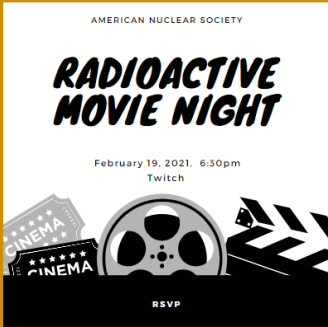
A. Home



Our Mission

The UPRM ANS section seeks, not only to promote awareness of nuclear sciences and engineering, but to increase nuclear interest and clear the numerous misconceptions surrounding nuclear energy; while fostering a closer professional and personal relationship, in a professional environment, among members.

B. Events



Movie Night

February 19th, 2021
Celebrate Marie Curie's life and famous discoveries with us this Friday. Join us on Kast to watch the movie Radioactive with us. It's completely FREE and open to all students.

RSVP today

[Google Form](#)

C. Get Involved



K-12

Classrooms are filled with students always eager to learn more. ANS UPRM Student Section is standing side-by-side with professional educators, through **Navigating Nuclear**. This program allows K-12 students to explore and discover the answers to many important questions. How does nuclear energy power our homes and communities? How does radiation ensure safe food for our tables and keep us healthy? How can nuclear science catapult us to the far reaches of space?



Outreach

We strive to increase the interest in nuclear sciences, encourage students to pursue careers in nuclear engineering, and promote research within the University of Puerto Rico. We provide the tools necessary to develop strong teamwork, leadership, and technical skills that will help students pursue internships, CO-OP's, and research in the field of nuclear engineering, science and technologies.

All members and non members are welcome to our career development workshops and seminars about the different branches of nuclear sciences including nuclear energy, radiology, carbon dating, criminology, and environmental science.



In Campus

We provide interdisciplinary activities in order to develop skills through hands-on experiences in an interactive environment. We promote research within all fields related to nuclear sciences that can have applications in improving people's lives and benefiting the environment. Students get to talk to experienced professionals and learn about new and emerging nuclear technologies.

D. Student Spotlight



Alenis Santiago

Professional Outreach Officer

We would like to recognize Alenis for her exceptional performance within and outside the student section, outstanding leadership abilities, and constant hard work. Alenis Santiago is a fourth year Chemical Engineering student pursuing a minor in Pharmaceutical Engineering. She is currently a Professional Outreach Committee Officer who has educated our community by coordinating educational webinars, leading our Daily Fun Facts project, and working on our Nuclear Engineering Minor proposal.

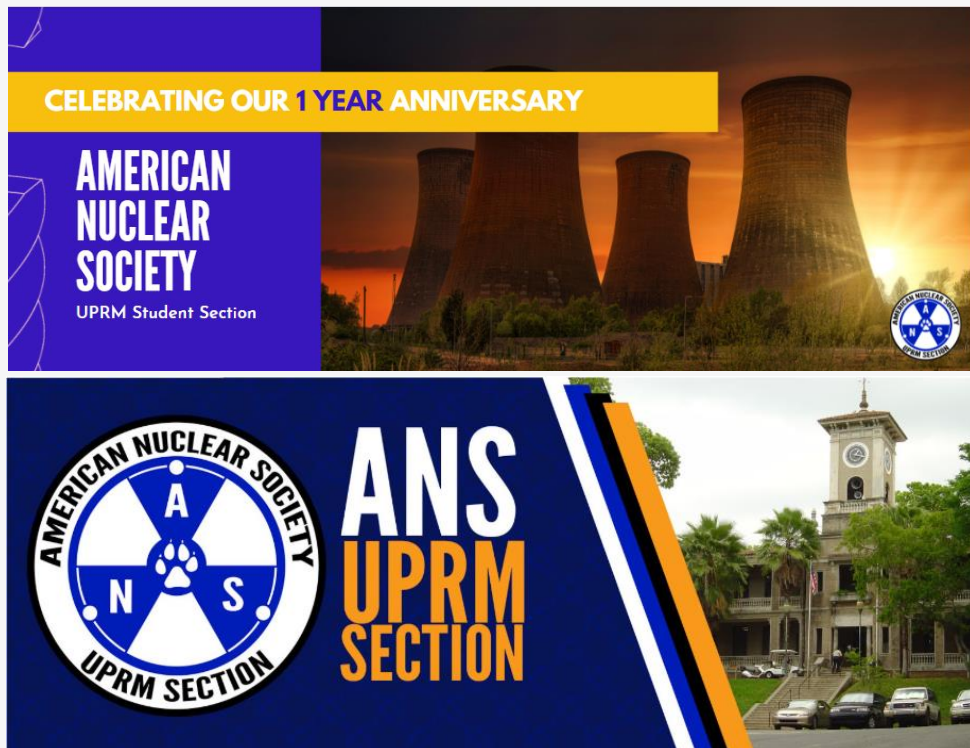
Alenis strives to pursue a PhD in Nuclear Engineering, with a special focus in material engineering and nuclear energy.

Achievements



6.4 Social Media Sample Posts

A. Banners





C. Additional Flyers and Posters





6.5 Activity Report Template

Outreach Activity Title Plan

**American Nuclear Society University of Puerto Rico
Outreach and Professional Development Committee**

[This document is intended to be filled out by either the professional outreach officer or the secretary, and approved by any member of the Board of Directors. This document is designed to be filled out electronically. It may be either signed electronically or printed and signed by hand. The secretary is responsible for ensuring a signed copy of this document is properly filed. This document should be filled and approved at least 3 days before the activity. Please note that this document is not an expense or final report. Delete red text before submission.]

I. Description

Insert a 2-3 sentence description of the basis of the activity including what will be done, food or objects that may be sold, related holiday or special activity, collaborators, and other important aspects. Specify if the activity is for ANS members only, other student organizations, all UPR students, or the general public. If any section does not apply, write N/A.

Objectives

- Include 2-3 objectives that the activity aims to accomplish
- Specify how the activity will contribute to the section's mission and vision

II. Plan

Describe in detail the logistics of the activity including the budget for the activity, the location, the date and time, required amount of members and officers to volunteer for the activity and how the activity will be announced.

Date and Time

Specify date and time.

Place or Platform

Specify physical location in which the activity will take place. Alternatively, add the link of the electronic platforms that will be used.

Volunteers



Specify tasks or jobs that must be performed as well as the amount of required volunteers to perform each one. Include a total amount of required volunteers for the activity.

Logistics

Include a detailed description of the plan for the activity. Describe all preparations that were carried out before the activity. Include a detailed plan or schedule of the actual activity. Include the amount of money required to carry out this activity.

III. Permits

Describe special permits or certifications required for the activity. Attach a picture or scanned copy of each permit or certificate to the end of this document.

IV. Expenses

List materials that must be purchased, rent of location or equipment, and other relevant fees. If possible, find the price of these objects from 3 different brands, stores, or providers. When the document is approved, the brand, store or provider will be determined based on price, quality, availability, and convenience.

A more comprehensive description of the items listed in the table below should be added here. If this section does not apply, delete the table but include a description stating that no purchases are required.

Item	Store 1	Store 2	Store 3
1	\$	\$	\$
2	\$	\$	\$
3	\$	\$	\$
4	\$	\$	\$
5	\$	\$	\$
Fixed Cost 1	\$	\$	\$
Fixed Cost 2	\$	\$	\$
Fixed Cost 3	\$	\$	\$
Total	\$	\$	\$



V. Materials and Resources

Presentation Material

Include names, descriptions, and links to all powerpoints, documents containing presentation material, handouts, books, and other resources.

Guests

Include the names, contact information, profession, and role in activity of each guest or speaker. Include links to guest's presentation material if possible.

Materials

List all materials required for this activity that do not require a purchase. Specify how each material will be obtained. If the materials are already owned by the organization, specify their location. If the materials will be lent to the organization by a member or third party, specify the details of the agreement.

University Resources

List any additional resources provided by the university.

Promotional Material

Describe activity's promotional and marketing strategy, including dates and platforms. Include relevant emails sent and recipients. Attach a copy of the activity's flyers to the end of this document.

VI. Notes

Describe final decisions made by the Board of Directors. Add relevant comments or another section if necessary.

Signature: Professional Outreach Officer

Signature: President/Vice/Treasurer/Secretary



6.6 Code of Conduct

ANS UPRM 2021 Code of Conduct

ANS members are committed to learning about science, engineering, and technology, as well as their applications and appropriate use. With that purpose in view, members are expected to serve and honor their careers through honesty, impartiality, respect, justice, responsibility, and integrity while keeping our community's and environment's best interest at heart.

The hereby document represents American Nuclear Society UPRM's Code of Conduct, last updated on February 17th, 2021. This set of rules or guidelines must be followed by all members and friends of ANS in order to maintain good standing with the section. Failure to comply may result in a warning, removal from any officer position, a revoked membership, or any other reprimendment determined necessary by the Board of Directors. These consequences depend on the rules violated, the severity of any accusations, and the available evidence.

I. Values

1. Political neutrality.

- a. While all friends and members are encouraged to have their own opinions, the section as an entity remains politically neutral. Members may not be judged, teased, or discriminated against based on political preferences. Political topics are to be avoided during official meetings and official ANS activities. No politically charged comments or posts may be uploaded to our website or social media platforms in the name of ANS or ANS UPRM.

2. Religious neutrality.

- a. While all friends and members are encouraged to have their own beliefs, the section as an entity remains religiously neutral. Members may not be judged, teased, or discriminated against based on their beliefs. Religious topics are to be avoided during official meetings and official ANS activities. No religiously charged comments or posts may be uploaded to our website or social media platforms in the name of ANS or ANS UPRM.

3. Non-Discrimination.

- a. ANS UPRM and its friends and members may not discriminate against any person based on gender, sexual orientation, sexual identity, race, socio-economic status, or disability. This includes the prohibition of negative comments against the person and exclusion from official activities. All people that meet the requirements, must be given an equal opportunity to participate and thrive within ANS.

4. Responsibility



- a. All officers and committee members have unique responsibilities and tasks to complete. We at ANS understand that our students have busy schedules and may not always be available. However, it is important for all members of our team to put in effort and attend at least 50% of all meetings they are invited to. Failure to carry out the assigned responsibilities may result in a warning or being removed from the committee or position.

5. Ethics, Honesty, and Integrity

- a. All members must comply with the official ANS Code of Ethics <https://www.ans.org/about/coe/>
- b. Our section aims to promote high standards of integrity by carrying out all functions ethically and honestly.
- c. Truthfulness and trust are the basis of any successful organization. Actively and knowingly lying to or hiding important information from the Student Section is not allowed. It is crucial for the Board of Directors to be frequently updated on all official matters and to frequently update members on relevant matters. All questions must be answered truthfully, with the exception of those involving classified information, in which case the person may decline to answer. [i.e. banking information, official passwords, personal situations, etc.]
- d. Publishing false or misleading information in the name of the student organization is also strictly forbidden. As we strive to become the credible advocates for nuclear engineering in Puerto Rico, we must prioritize the quality, accuracy, and reliability of our information.

II. Interpersonal Relationships and Communications

1. Respect

- a. All students must follow the Official ANS Respectful Behavior Policy <https://www.ans.org/about/rbp/>
- b. Maintaining a professional conduct at all times is of utmost importance. All official communications including emails and text messages regarding ANS official business must maintain a professional or friendly tone at all times.
- c. While the nature of our Student Section requires for a basic hierarchy structure to be in place, no member of the Board of Directors is to abuse their power in any way. Attempts to use any officer position as leverage for personal gain will not be tolerated.
- d. Respect is the basis of all interpersonal relationships. Insults, threats, attempts of humiliation, degradation, manipulation, belittling, yelling, and other forms of verbal assault will not be tolerated. All reports of verbal misconduct or psychological abuse will be taken very seriously.



- e. Physical assault towards any person, including any action intending damage towards the person's body or possessions will not be tolerated. Any report of this type of behavior will be reported to the relevant authorities.

2. Official Communications

a. Email

- i. All members are welcome to speak to recruiters, professors, professionals, students, companies, and organizations that may be interested in working with the Student Sections. These communications are to be signed with the student's name and position, and sent with a copy to the official ANS UPRM email.
- ii. The only persons allowed to use the official ANS UPRM email account are the President, Vice-President, Treasurer, and Secretary. They must sign all communications with their name and position. The only instance in which an email may be signed as *Board of Directors* is in the case that the entire Board of Directors reads and approves said communication beforehand.
- iii. Any member may not send an email signed with the name of another person without their explicit consent.

b. Social Media

- i. Posts
 - 1. Only the members of the Social Media and Web Committee and the corresponding Director may post on social media as long as all official guidelines are followed and approval from the Board of Directors is obtained beforehand.
- ii. Messages
 - 1. Only the members of the Social Media and Web Committee and the corresponding Directors may respond to social media messages received. These must follow all guidelines and remain respectful.

3. Confidentiality

- a. At ANS we strive to provide our members a comfortable and safe environment. We encourage all members to notify the Board of Directors of any difficult or special situations that may be affecting them, to facilitate any aid that we can provide. These can include any economical hardships that affect your studies, abusive situations, or medical conditions that can require immediate attention and you would like us to be prepared for. This is optional, and any information you decide to share with us will remain strictly confidential.



IV. Plagiarism

1. Plagiarism of any kind will not be tolerated. All accusations of plagiarism with probable cause will be referred to the University. We encourage our members to use correct citations whenever necessary, and to reach out to the Board of Directors for any questions on how to do this properly. We also encourage our members to be wary of copyright laws when obtaining images or other resources from the internet.

V. Sexual Harassment

1. Sexual harassment of any kind will not be tolerated within ANS. All complaints with probable cause will be referred directly to the University. We value the safety of our members, both female and male, and encourage everyone to report any incident that they experience or witness. Being convicted of sexual harassment will imply no longer being in good standing with the Student Section.

VI. Special Situations

1. Covid-19 Pandemic
 - a. Given the recent pandemic, there are additional guidelines that must be followed to ensure the safety of all members and friends of ANS. All guidelines in this subsection apply exclusively to the time frame in which the Covid-19 pandemic is still ongoing.
 - i. Events
 1. All meetings, activities, and events are to be held online whenever possible. If any activity requires students to be physically present, it must be approved by the Board of Directors. All participating students must be thoroughly informed of the risk and safety guidelines, and must sign a consent form.
 - ii. Social Distancing
 1. It is imperative that all students maintain an appropriate distance from each other to prevent the spread of disease. Agglomerations of members are strictly limited to no more than 5 students, which must maintain a distance of 6 feet at all times.
 - iii. Safety Measures
 1. All students physically present in any event must wear a surgical mask, N95 mask, or equivalent at all times.
 2. All students must wash their hands before and after interacting with other members. Frequent use of disinfectants, alcohol, and hand sanitizer is also strongly recommended.



iv. Symptoms and Testing

1. If anyone has tested positive for Covis-19 or presented any symptoms up to 14 days before the event, they will not be allowed to participate.
2. If anyone tests positive for Covid-19 or presents any symptoms up to 14 days after an event they attended, it is crucial that they inform the Board of Directors immediately.

Desiré Rivera Borges

Signed ANS UPRM President

Signed ANS UPRM Vice-President

Carla Rios

Signed ANS UPRM Secretary

Signed ANS UPRM Treasurer

