

Samuel Glasstone Report 2017-2018
American Nuclear Society,
University of Wisconsin-Madison

Submitted to the ANS Glasstone Award Committee

May 1, 2018



| | | |
|---------------------------|------------------|---------------|
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| Public Information | Marissa Brown | |
| Communications | John Masse | Aaron Huxford |
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1 Introduction

During the 2017-2018 academic year the American Nuclear Society, University of Wisconsin-Madison (ANS-UW) has worked diligently to maintain its track record of planning, organizing, and executing events in areas of service to ANS. These service areas being public outreach, professional development, and community service. Having been recognized as a very successful student section in past years, ANS-UW has tried to uphold its image through organization of traditional events as well as undertaking several new projects involving professional development opportunities. Part of this success is due to relationships developed with other organizations such as the American Institute of Aeronautics and Astronautics (AIAA), Material Advantage, Engineering EXPO, as well as strong involvement with the Department of Engineering Physics, the College of Engineering, and the ANS Wisconsin Local Section.

Every year, ANS-UW participates in many community service events as a way to give back to the community that fosters the student section. Some of these events include Adopt-A-Highway, Youth Workshops, Girl Scout Workshops, and volunteering to tutor high school students. As always, we had many volunteers for these events, whose energetic presence ensured these were huge successes in the community. Members have had a positive impact on the community and upheld the ANS-UW image.

ANS-UW also organizes a number of public outreach events for members of the community. This years events included Camp Badger, Nuclear Science Week, Earth Day, and Engineering EXPO. These events gave members the opportunity to educate a wide variety of people, from grade school children to senior members of the community. Public outreach is an essential part of the student section, and careful planning and preparation goes into each of the events.

In addition to community service and public outreach, ANS-UW values professional development opportunities for our students, we were able to organize several visits from professionals to give presentations on nuclear engineering and other related fields. ANS-UW also encourages students to become involved at a national level. We sent students to attend the ANS Winter Meeting in Washington D.C., and a large portion (17 students) of our section attended the Student Conference in Gainesville, FL. In addition to these large networking events, members of ANS-UW, as well as other students in the department, attended weekly networking events such as breakfast at Mickie's Dairy Bar on Fridays, and coffee and donuts on Wednesday mornings.

ANS-UW members have even had time to participate in social events, despite spending time in class, research, and public outreach and professional development events. The largest social event was the biannual Pic-Nuke which is a picnic held at the beginning and end of every year for the students and faculty of the entire Department of Engineering Physics. In addition, many other outings such as hockey games, chili cook-offs, and even a recreational sports league allowed students to take a break from their busy schedules and get to know one another.

In summary, ANS-UW has been able to maintain a high level of involvement in the community this past year while being able to expand interest in many other types of activities. Overall, the student members of ANS-UW have been committed and driven in everything they have done this year, This has lead to a very successful 2017-2018 academic year.

2 Section Management

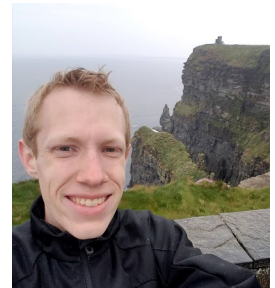
The ANS-UW Student Section is ran by a Board of Governors and mutiple volunteer committees with guidance by a Faculty Advvisor. Students are elected from the section to serve on the board on an annual basis; this is the primary body that runs the student section. Students from the section who are particularly interested in helping to make the section successful can volunteer to chair committees and coordinate events. The faculty advisor is a member of the UW Faculty that helps provide insight to board.

2.1 Board of Governors

The ANS-UW section elects seven officers each year to serve on the executive committee. The elected positions include President, Vice-President, Treasurer, Public Outreach, Communications, and two Governors. The communications and two governor officers are re-elected each semester to provide more students the Opportunity to serve on the Board, while the rest of the positions are held yearly.

2.1.1 President

The President's main responsibilities include moderating general member and executive committee meetings, scheduling speakers for general meetings, organizing tours and conferences, managing the section's schedule, and acting as the liaison and representative for the section both professionally and within the College of Engineering. The President should also oversee other positions and make sure their duties are being performed. The President for ANS-UW this year was Kyle Anderson, who served as the governor and communications officer in previous years.



2.1.2 Vice President

The Vice-President's responsibilities are organizing the section's social activities, acting as President in the President's absence, and providing emotional support for the President. Some of this year's specific duties included coordinating Pic-Nuke, FISSION, and ordering new t-shirts. This year the Vice-President was Kendall Barrett, who has been actively involved in our student section, serving as governor in the previous year and a member of the public outreach committee.



2.1.3 Treasurer

The Treasurer's responsibilities included drafting budgets for the entire year, keeping track of all transactions completed by the organization, writing grant proposals, acting as liaison between ANS-UW and the Engineering Physics Department Administrator, and advising the other executive officers on how best to spend the section's funds. The treasurer this year was Jake Quincey who has been greatly involved not only in UW-ANS, but in the Nuclear Engineering community as a UWNRR reactor operator.



2.1.4 Public Information

The Public Information (PI) Officer must develop, organize, schedule, and execute the section's public outreach efforts as well as oversee the Scholarship Essay Contest. Included in this responsibility was writing and designing presentations to be used at public outreach events, coordinating with teachers and scout leaders to help organize events such as Boy Scouts and the Essay Contest, proper inventorying public outreach supplies, and working earnestly throughout the summer to coordinate Camp Badger (an engineering summer camp for middle school students). The PI for this year was Marissa who served as communications officer last semester and has been extremely involved in all of our public outreach events.



2.1.5 Communications

The Communications Officer's duties are to take minutes at executive committee meetings; send out weekly announcements; advertise for upcoming events usually by flyers, social media, or via email; and to maintain and update the ANS-UW Google Groups mailing list, the ANS-UW website, and the ANS-UW social media accounts on Facebook, Instagram, and Twitter. The importance of this position is to ensure that the members, students, and community are properly informed about the events going on within ANS-UW. The Communications Officer for the fall semester was John Masse and for the spring semester was Aaron Huxford.



(a) John Masse



(b) Aaron Huxford

2.1.6 Governor A

Governor A acts as a liaison to the Wisconsin ANS Local Section. Governor A was given this responsibility, which included a monthly conference call with the local section executives which relayed information between both executive boards. Both officers help with other events throughout the semester such as E-Week. The Governor A for the Fall semester was Robert Armstrong and for the Spring semester was Michael Zupan.



(a) Robert Armstrong

(b) Michael Zupan, not pictured by request

2.1.7 Governor B

Governor B is in charge of community service events such as Adopt-A-Highway. The Governor B for the Fall semester was Thomas DeGuire who was then reelected to fill the position in the spring.



2.2 Non-Elected Positions

2.2.1 Youth Workshop Coordinator

The Youth Workshop Coordinator's main responsibility is facilitating and organizing ANS-UW's Boy and Girl Scout Scouts Merit Badger Workshops. The workshop operates to disperse Nuclear Science Merit Badges with the scouts, but it also is open to other interested youth groups. The Youth Workshop Coordinator should understand the basic operations behind Boy and Girl Scouts, the Nuclear Science Merit Badge, and the outreach and communication required in order to organize this event. The Youth Workshop Coordinator this year was Kyle Krcmar.



2.2.2 Advocacy Chair

The Advocacy Chair is the appointed student member head of the Advocacy Committee. The role of the Advocacy Chair is to act as a liaison between the Board of Governors and the Advocacy Committee and coordinate the work of the advocacy committee. The Advocacy Chair reports directly to Public Information. The Advocacy Committee is responsible for all primary efforts advocating for nuclear energy on a public, university, and political level. The Advocacy Chairs for the Fall semester were Alex Swenson and Katie Mummah, the spring semester's advocacy chair was Robert Armstrong.



(a) Alex Swenson and Katie Mummah



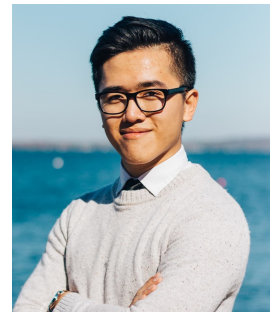
(b) Robert Armstrong

2.2.3 Diversity Chair

The Diversity Chair is also a relatively young volunteer position in the student section. The Diversity Chair works closely with the Public Information Officer, the Youth Workshop Coordinator, and other Board members to arrange events that promote underrepresented groups in the nuclear industry and STEM fields. The Diversity Chair is responsible assistance and coordination of several events ANS-UW has interest in coordinating.

- Professors in Pink Fundraiser: all proceeds donated to the National Breast Cancer Foundation
- Youth Workshops: works with the Youth Workshop Coordinator to promote diversity in STEM fields education
- Welcome event for South Carolina students: Coordinates welcome activities for a group of students who finish their degree with UW

Ben Chen was the Diversity Chair this year.



2.2.4 Faculty Advisor

The Faculty Advisor for ANS-UW is there to provide the chapter with advice and act as a liaison between the organization and the department. Often, the Faculty advisor retains his position for many years, so they are able to provide valuable information to the organization, as the Executives and Chairs often are served by people new or just getting involved in ANS-UW. This year, the Faculty Advisory was Paul Wilson, who has served as the faculty advisor for many years and is highly involved with national ANS as well.





3 Operations

ANS-UW has been very successful with officer transitions, and this is due not only to the contributions of the executive board and general members, but also to the administrative procedures that have been implemented. The processes in use make it possible to turn over our executive board with ease. These processes have become so easy because of our utilization of on line documentation and availability of the board members.

3.1 Active Membership

Active members are ANS-UW students that have paid dues to the section and achieve three or more active member points per semester. Dues are \$10 per semester or \$15 for the whole year. Active membership status is required to participate in social events and professional development opportunities.

3.1.1 Active Member Points

Beyond paying dues, active members are expected to participate in varying activities held by ANS-UW. Active members are rewarded for participating at section events and helping with section business. Points can be earned by attending meetings, workshops, outreach events, tours, etc. that ANS-UW hosted or encouraged.

Active membership points come with benefits, such as reduced T-shirt prices or access to special social and professional development events. In the fall members with sufficient active members points were invited to an end of the semester banquet and were eligible to receive funding to attend the ANS Winter Meeting. In the spring sufficiently active members were invited to a spring banquet and had the opportunity to attend the end of the year social with minimal out-of-pocket costs.

These special events serve as an incentive to get ANS-UW members to help with demanding tasks such as hosting youth workshops, volunteering at the student conference, or organizing an Engineering Expo display. With these incentives and the Active Membership Points system, the ANS-UW Board of Governors can more easily delegate work to and organize our members.

3.1.2 Captain Neutron

At general section meetings, ANS-UW likes to recognize one student member who has been particularly active in the period prior to the meeting. The student is honored by being named “Captain Neutron” of the section and maintains this title until another student is picked. Students who receive this award have their picture, often times a humorous picture, posted on the bulletin board outside the departmental office for everyone in the department to see. The student also receives a free ANS-UW t-shirt. Four Captain Neutrons were named this year, they were: Katie Mummah, Pradyumna Rao, Michael Zupan, and Nick Ackerman.

3.1.3 End of Semester Banquet

End of semester banquets are held to reward highly active ANS-UW members. Members are welcomed to socialize and eat a meal traditionally prepared by the executive board. The Fall banquet featured a breakfast for dinner theme with eggs, fruit, bagels, and pancakes. The spring banquet featured an extensive potluck including pigs in a blanket, chicken dip, mac and cheese, and baked goods. These banquets are followed by our awards meeting. Here, there are awards for the member involved in the most ANS-UW activities, most active undergraduate and graduate, and a couple gag awards are presented. Following the award ceremony, we hold our officer elections for the next semester.

3.2 Financial Planning

The yearly budget is produced by the Treasurer at the beginning of the academic year and presented to the executive board at a meeting where they are ratified. The budget is a mechanism for the board



to outline priorities for the upcoming year. Anticipated expenses are detailed as greatly as possible, allowing us to set accurate funding.

Our income comes from two sources: fund-raising and cash income. The treasurer is responsible for handling all these incomes. All of this income is used to support general chapter operations. Cash income comes from numerous sources. Our largest source of income is from Youth Workshops. Our members pay dues for the year or semester, and chapter t-shirts are sold as an additional source of income.

3.3 Communications

Our internal and external communication methods allow us to run a successful student section. All important meetings, procedures, and contacts are archived so future executive board members can search for them. In addition, we communicate with our members through multiple avenues including: email, our website, social media, etc.

3.3.1 Website

Our website (atomicbadger.org) contains information on ANS-UW including how to join our student organization, ANS National Conferences coming up and resources for scholarships and job opportunities. The website also has a calendar that is updated as often as possible to include all of ANS-UW's events, including section meetings, professional development activities, socials and more.

3.3.2 File Storage & Sharing

In order to have all our communications synced and in one place we rely on Google Drive for nearly all internal documentation. Google Drive holds a variety of applications such as word processing, spreadsheet editing, and presentation creation. With Google Drive we are able to share specific files with those in the organization who should have access to them. When multiple people are editing a document changes are updated immediately making real time collaboration possible. Another use of Google Docs is their form submissions which allow members to sign up for events or submit specific information that is needed. Finally, within Google Drive we keep our member email list which allow for email communication within our group.

3.3.3 Slack Channel

Slack was utilized this year to improve both internal and external communications. The ANS Supreme Council slack channel included only members of the executive board. The channel was primarily used to plan meetings, youth workshops, conference travel, and day-to-day communications. A Student Conference slack channel was also created for communication between members that attended the National ANS Student Conference.

3.3.4 Social Media

With the majority of the student body active on social media, it is a great tool for communicating with members. The American Nuclear Society UW Student Section Facebook page is used to post about upcoming events and outreach to the general public. ANS-UW started an Instagram account for the student section to share photos of events.



| Date | Event | Speaker/ Company |
|--------------------|------------------------|---|
| September 11, 2017 | Fall Kickoff Meeting | - |
| October 12, 2017 | General Meeting | James Bunsen, Los Alamos National Laboratory |
| November 16, 2017 | General Meeting | Dr. Ross Radel, Phoenix |
| December 11, 2017 | Fall Banquet | - |
| February 1, 2018 | Spring Kickoff Meeting | - |
| March 22, 2018 | General Meeting | Charles Opitz, Guardian Life and Park Avenue Securities |
| April 25, 2018 | Spring Banquet | - |

Table 1: List of General Meetings

4 General Meetings

4.1 General Meeting Speakers

ANS-UW holds general meetings several times throughout the course of the semester to better disseminate information among the members about upcoming events, opportunities, and meetings. To add an extra facet of interest and professional development to the meetings ANS will frequently invite speakers to present at these meetings.

4.1.1 James Bunsen

In October, we were lucky enough to have James Bunsen from Los Alamos National Lab come and speak to us about LANL's nuclear criticality safety division. Along with the safety division, James also explained what it is like to work at Los Alamos and how great of an opportunity it is to intern there. This information was well received by our students, and sparked great interest in applying for internships at Los Alamos National Lab.

4.1.2 Dr. Ross Radel

In November, Dr. Ross Radel - a UW-Madison alumni - talked to students about Phoenix. Phoenix is a local nuclear company that creates compact and high-yield neutron generators. Ross talked about the companies technology and the multiple uses of neutron generators in industry. Ross also talked about the process of starting a nuclear technology company.

4.1.3 Charles Opitz

Charles Opitz, a local businessman and financial advisor, came to speak to our chapter on Thursday, March 22nd. A bit of a shake-up compared to our normal speakers, Mr. Opitz conducted an interesting and helpful discussion with students that especially resonated with some of our more senior members. His talk focused on saving for retirement and good spending and saving habits to develop and we graduate and move into the working world. He also spoke at length about student loans, and how to evaluate debt, stressing the difference between "good" and "bad" debt. Members expressed real appreciation for the last portion of his talk, which addressed 401k plans, IRAs and Roth IRAs, company equity, and other incentives we may see in potential job offers. As part of the mission of our chapter is professional development, this event both "checked the box" and provided our members with meaningful information for their continued job search.



5 Professional Development

5.1 Palo Verde Generating Station

On September 19th of 2017, representatives of Palo Verde Generating Station came and informed our student section of their nuclear power plant that is located in Arizona. The members of Palo Verde that came spoke extensively on job opportunities at the plant, the power generation done there, and the steps one could take to begin interning there. This talk was open to not only ANS, but to the entire College of Engineering at the University of Wisconsin. With the large invitation, there was an excellent turn out for this extremely informative talk.

5.2 Jensen Hughes

On September 18th, 2017, Drew Nigh, a recent UW-Madison Nuclear Engineering alumnus, gave an information session on his employer Jensen Hughes. Jensen Hughes provides safety and risk management consulting services to nuclear power plants around the world. Drew spoke about what life is like as a nuclear industry consultant and what opportunities are available to new college graduates. He also spoke about his experience with JH and provide additional tips on how to tackle the post-college job hunt.

5.3 Byron Plant Tour

On November 6th, 2017 members of the ANS student section joined by members of the "Pathways to a Sustainable Planet" program through Participatory Learning and Teaching Organization toured the Byron nuclear power plant in Byron, IL. Due to their refueling schedule, we were not able to go on a complete tour of the facility. The tour mostly took place in the training building, where members got to interact with controls in the simulation room. This was followed by a presentation on the history of the plant and a short Q&A session with one of the senior operators.

5.4 SHINE Medical Technologies

On Friday, March 2nd, a convoy of ANS student chapter members converged at the Janesville, WI facility of SHINE Medical, a spin-off of work done here at the UW nuclear engineering department. SHINE CEO and UW-ANS alumnus Greg Piefer delivered an inspiring and informative address, followed by questions from student and local chapter members. In his talk, Piefer discussed future plans for SHINE, their technology, and the market for similar companies to make an impact in the nuclear industry. Following the formal discussion, student chapter members, local Wisconsin chapter members, and SHINE staff mingled and conversed over an array of food and drink provided by the local Wisconsin chapter. Students attending were thrilled with the opportunity to learn about an exciting new company and network with like-minded individuals in their field.

5.4.1 LaTeX Workshop

In the fall semester the student section held an introductory workshop on LaTeX - a typesetting language used for the creation of technical and scientific documents. The workshop helped students get started with the LaTeX syntax and writing their first document in LaTeX. Students attended to help improve their writing in classes and research groups.

5.4.2 Python Workshop

In the spring semester the student section held a workshop on the Python language. The workshop started out with a 90 minute crash course in the Python language. After getting the basics of the language students worked on solving a neutron shielding problem in teams with Python.



6 Public Information

6.1 Camp Badger

Over the course of the summer, a group of ANS-UW members reached out and participated in a week long, STEM summer camp held by UW-Madison's College of Engineering, Camp Badger. The summer camp is geared at education of middle school students in a variety of STEM fields. ANS-UW gave a presentation for each group of students on the topics of nuclear science and technology, including basic nuclear chemistry, ionizing radiation, radiation safeguards, careers within nuclear science, fission, and fusion. ANS-UW also was able to bring artifacts from the UW Nuclear Reactor and various detectors and counters to share with the students. The workshop managed to reach over 200 students throughout the twelve presentations over the summer. The students also took part in three hands-on demos during the presentation. The demos covered the method of measuring radiation via counting, the fission process, and reactor control via control rods respectively. The students practiced counting alpha, beta, and gamma sources with an ion chamber outputting gross counts over a time period then applied different shields of thin plastic, aluminum, and lead. The fission process was learned about with a balloon demonstration. The students would take a long balloon, representing an Uranium-235 atom, twist it to represent the instability of the Uranium-235 atom, then the balloon would be cut and fly off in to two parts, symbolizing the kinetic energy and fission products from a fission event. For the last demonstration, the students each represented Uranium-235 atoms and organized themselves into tight clusters of "fuel rods". They were each then given three ping-pong balls, symbolizing neutrons, and a few starter ping-pong balls were introduced into the system that started a chain reaction of students throwing their own ping-pong balls and causing other students to "fission". The second part of this demo consisted of the same set-up, but volunteers were put in the middle of the "fuel rod" collections of students to act as control blades. The volunteers struck most the ping-pong balls away from the other students, slowing down the reaction and demonstrating the purpose and use of control rods. ANS-UW was invited back for next year's Camp Badger as well.

6.2 Nuclear Science Week

This years Nuclear Science Week took place from October 16th - 21st, and celebrated the 75th anniversary of CP-1. ANS-UW organized a number of public outreach events to commemorate the anniversary.

6.2.1 Power for Progress

On October 19th, during nuclear science week, ANS-UW screened the nuclear power and science documentary "Pandora's Promise" at the Wisconsin Energy Institute building. The showing was a free event open to the public that would allow student section members to watch this film among people of the local and university communities. About 30 people total showed up to the screening and vast majority were community members. The screening went well and has capped by a Q&A session featuring Professor Paul Wilson and Professor Todd Allen. The questions that were fielded from the community was the best part of the entire event. The movie inspired questions that were in-depth and showed that the community was critically thinking about the nuclear industry.

6.2.2 Professors in Pink

Professors in Pink is an annual event used to raise money for breast cancer research. From October 16th to October 21st ANS-UW collected donations from students in various nuclear engineering classes. The donation amounts would determine which pink item that the professor in that class would have to wear for a day. For example, if the class donated \$20, the professor would wear a pink tutu. If \$100 was donated, the professor would have to wear a pink bunny costume. In total, over \$500 was raised and donated to the American Breast Cancer Foundation.



6.2.3 Flyering for CP-1

To end Nuclear Science Week, members handed out flyers at the beginning of a Badgers basketball game. The flyers contained information about the 75th anniversary on one side and the future of nuclear on the other. Most people going into the game seemed very uninterested in the flyers, and we had a hard time handing them out at the event. We then proceeded to leave the flyers around classrooms in various UW-Madison buildings.

6.3 Earth Day

The ANS UW Student Section attended an Earth Day conference hosted by the Nelson Institute for Environmental Studies on April 23, 2018. Members volunteered to help advocate at the exhibition which included posters, handouts, and other items pertaining to nuclear advocacy. The exhibition was a great experience for members to speak to members of the community. Being an Earth Day conference, we were surrounded by environmentalist organizations with strong anti-nuclear policies. Many of our members did a great job advocating when faced with criticism by educating and informing the public the truth about nuclear energy. We also met some environmentally concerned members of the public. They were a small contingent of nuclear advocates for environmental reasons, self-styled Rethinking Nuclear.

6.4 Engineering EXPO

On April 6th and 7th, ANS members volunteered at Engineering Expo, the College of Engineering's largest public outreach event of the year. Students from all over the state and beyond, from Pre-K to high school toured the engineering campus and learned about the different organizations and activities that go on here. ANS members participated by showing off our ANS booth, which focused on educating young people about radiation and dispelling myths about nuclear technologies through fun games and exercises. The booth and presentation was well-received by children and parents alike, and our volunteers had good practice presenting to a less traditional crowd.

6.5 New Fire Showing

On April 30th, the Union theater provided a free screening of The New Fire. After the showing there was an opportunity to have a discussion with the director, David Schumacher. The College of Engineering- Department of Engineering Physics was able to sponsor this event thanks to many of the professors. With the theater being so large, there was a very great turn out from not only members of ANS-UW, but others in the UW-Madison community.



7 Public Service

ANS-UW strives to be an active and positive force in the Madison community. To this end, we try to coordinate community service efforts and engagement with the public.

7.1 Adopt a Highway

ANS-UW participated in Adopt-A-Highway for the thirteenth consecutive year. Members cleaned a two mile stretch of University Avenue between County Highway Q and Old Middleton Road. Per the requirements of the program, participants are required to clean the highway a minimum of three times between April 1st and November 1st every year. We completed the first events in the Spring, Summer, and Fall.

7.2 Nuclear Science Youth Workshops

Over the course of the academic year, ANS-UW holds six workshops for boy and girl scouts, along with other interested youth of high school age and younger. ANS-UW managed to bring in over 230 scouts and youth, not counting the adults that also came with their children through our program this year. This number grew from last year, and we hope to keep this number growing and hold more workshops aimed specifically at girl scouts.

Our workshop consists of five stations and an introductory nuclear science lecture. The attendees were able to tour our research reactor, with both a basic presentation on fission and an in confinement walk around tour. They then were able to tour one of two of our fusion research facilities, either the Pegasus Tokamak facility or Inertial Electromagnetic Confinement Experiment. Next, the workshop attendees received a careers presentation about the vast amount of opportunities available in the field of nuclear science and technology. Lastly, we had two coupled stations, the counting station, where the attendees took radioactive sources and experimentally observed the effects of time distance and shielding, and the cloud chamber station, where the attendees were able to learn about half lives and see radiation in a cloud chamber. We were able to award hundreds of merit badges this year, we hope to continue this tradition of bringing in a large number of scouts and youth in the future.

7.3 Tutoring Volunteers

Every Tuesday starting March 13th ANS-UW has sent volunteers to tutor at the local Madison West High School. Volunteers tutor from 4:00 - 5:30 PM on topics such as chemistry, biology, social studies, and trigonometry. This gave members of ANS-UW the opportunity to reach out to the community and inspire young minds.

8 University Service

8.1 UWNR Tour

In order to further involve our members, especially the first and second year students, ANS-UW offered a tour of the UW-Madison Nuclear Reactor (UWNR). It is a privilege to have this resource on campus, and it was utilized to encourage more involvement within the section and further educate members as to how our research reactor works. There were two tours to accommodate schedules on Friday afternoons. Each tour consisted of approximately fifteen people, split into two groups per tour.

The tour consisted of an educational and introductory power point, one that explains the basics of nuclear power plants and why they are important to generating clean energy. After the presentation, the tour began! Basic operations were explained with the control panel as a prop. The group then proceeded to the pool top, allowing them to look into the reactor pool. To conclude the tour, the water filtration system was explained in detail, and there were plenty of excellent questions to follow.



Overall, this attempt to involve our younger members was a huge success, and peaked further interest in ANS-UW.

8.2 Engineering Bash

Within the first week of school, ANS-UW held a recruitment and education event open to UW-Madison's College of Engineering. We handed out pamphlets and gave talks to passing by college students to see if they were interested in learning more about nuclear science or technology and possibly joining ANS. We discussed the what involvement in an ANS student section would look like and tried to welcome all the new students to campus. The event was an overwhelming success over past years, with an addition of over fifty people to our emailing list.

9 Nuclear Support

9.1 Annual Meeting

ANS-UW sent a student to 2017 ANS Annual Meeting in San Francisco. The student participated in multiple committee and division meetings in addition to other conference events.

9.2 Winter Meeting

ANS-UW sent 8 students to the 2017 ANS Winter Meeting in Washington, D.C. Three of the students presented at the senior design competition and won with their molten salt research reactor design. Students participated in division meetings and attended a variety of presentations and panels.



Figure 4: Winter Conference attendees

9.3 Student Conference

ANS-UW sent 17 students to the 2018 ANS Student Conference at the University of Florida in Gainesville. At the conference students 7 students presented podium presentations, 3 students presented posters, and 1 student helped chair a panel. Two students won awards for their podium presentation: Aaron Huxford for his paper "An Evaluation of NuScale Power's Small Modular Reactor for Nuclear Desalination in the American Southwest Using the IAEA's DEEP" in the Operations and Power track. And Alex Swenson for his paper "Surrogate Reactor Modeling for System Mass Optimization in Space Applications" in the Reactor Physics division.



Figure 5: Student Conference Attendees

10 Social Events

10.1 Summer Social at Devil's Lake State Park

On July 30th, 16 ANS members enjoyed a beautiful day of hiking and swimming at Devil's Lake state park. Attendees drove out to Baraboo, Wisconsin where we ate lunch and caught up on all of our summer activities. After lunch, the party divided into two groups, those who wanted to swim, and those who wanted to hike. After a day full of activities in the sunshine, the event concluded and the ANS members ventured back to Madison. This event connected members who were staying in Madison for the summer and started what will likely become an annual event at the state park.

10.2 Fall Pic-Nuke

This fall's Pic-Nuke was another great success. Over 80 people attended the event on September 15th, 2017. The beautiful Friday evening included great food and great company. Burgers, brats, and beverages were served at the Hoyt Park shelter as members of our student section took part in our semi-annual BBQ social. Put on entirely by the executive board, the event provided students and faculty the opportunity to become acquainted in an informal setting. Pic-Nuke has been a tradition for many decades in the UW-Madison ANS chapter, with one in early September and another in late April before finals. The fall social strove to get students interested in upcoming ANS events, while the spring event serves as a farewell to graduating students and those leaving Madison for the summer.



Figure 6: Fall Pic-Nuke attendees

10.3 Ice Skating

For this year's winter social, UW-ANS hosted ice skating at one of the University's recreation centers. The social was planned to line up with the date of CP-1's first criticality! Many of our members skated around the rink, helped others learn to skate, and hopefully stayed on their feet. The winter social is always a great way to have some fun before finals kick in. We strive to provide opportunities for our members to de-stress, and have some fun before all leaving before winter break.

10.4 Chili Cook-off

This February, the Essen Haus Restaurant hosted their 5th Annual Chili Cook-off in Madison, WI. Fifteen cooks, each with their own homemade recipe, gathered to have their chili judged by professionals and contest attendees. This year's chili was derived from one of our graduate students own personal recipe. The morning of the competitions the competition, the executive board got together to cook the chili. ANS-UW members of all ages made it out to the Essen Haus on Saturday to vote for the chili. In the end, our chili won first place in People's Choice and second place in Judges Choice! This was the 5th time the ANS executive board took the People's Choice Award. The Chili Cook-off has become a popular event for both the executive board and members to spend time with one another, try some great chili, and help the club win the competition.



10.5 Department Wide Bowling Social

Who knew department head and Reactor Physics professor Doug Henderson could roll a turkey easier than eating a turkey sandwich? On April 12th, the nuclear engineering department and ANS hosted a bowling social for teachers and students alike. Student members had a wonderful time getting to know their professors on a more personal level over cheese curds and bowling, and some even stuck around after to play billiards and continue the conversation and the fun.

10.6 General Meeting Social

To increase attendance at our general meetings, we decided to start having small socials after each general meeting. For the Spring Semester, the theme for the socials was game night. This was received well by all the members! A few of the games played were Nuclear Jeopardy, Nuclear Pictionary, and Quiplash. These "game nights" allowed for hilarious conversations and inter department bonding. Because of the great reviews, we hope to continue this next semester and for years to come.

10.7 Wednesday Coffee and Donuts

For many, Wednesday is the most mundane of days. In the middle of the week when ambitions run low, the ANS student section provides free coffee and doughnuts to its members and other department friends. Between 8:30 and 10:00 am, undergrad and graduate students gather in the Engineering Research Building for Greenbush doughnuts. Conversations about nuclear energy and politics resound down the hallway as faculty and students line up for coffee refills between classes. This weekly tradition has been around since 2005 and continues to stimulate connections within the Engineering Physics Department.

10.8 Mickie's Dairy Bar

In addition to the regular social outings, ANS-UW has a long-standing tradition more than a decade old of weekly breakfasts at Mickie's Dairy Bar. Students, faculty, and occasionally some ANS guests or visiting alumni meet at 7 AM every Friday morning at Mickie's Dairy Bar. Attendees enjoy a hearty breakfast just off engineering campus to start the final day of the week off right.

10.9 Intramural Sports

This year ANS-UW formed two intramural sport teams, an Ultimate Frisbee team during the fall semester and a volleyball team in the spring semester. The ultimate frisbee team, named N.E.R.D.s (Nuclear Engineers in Recreation Division Sports) had 13 team members. The season was six games long, in which the team won four of those. Members had a great time playing ultimate frisbee and became closer as the season went on. The volleyball team also had a large turnout at each game. Both of the teams made it to playoffs at the end of the seasons. Intramural sports were very successful and will be continued next year.



(a) Intramural Frisbee



(b) Intramural Volleyball



11 Future Work for ANS-UW

ANS-UW is proud of the work it has done but is always looking for ways to improve. In the future the section would like to improve its work in its community service pillar as well as collaboration with other groups in Madison. ANS-UW plans to challenge its Governor-B next year to plan and execute more community services events in addition to the long standing highway cleanup event. ANS-UW also plans to collaborate with more energy and environmental focused students groups on campus. The student section hopes to hold joint discussion and events with these groups focused on how nuclear technology can help better our world.

12 Conclusion

The American Nuclear Society at the University of Wisconsin-Madison has had a great year in providing its members opportunities in professional development, public information, public service, university service, nuclear support, and social events. The Student Section has consistently received thanks and praise from members of the community as well as parents and students at events. All of the members of the society have been nothing short of extraordinary this year and have dedicated a large amount of their time to help run our numerous events. We are looking forward to already starting to plan and prepare events for the 2018-2019 year.