

American Nuclear Society University of Illinois

SAMUEL GLASSTONE AWARD SUBMISSION

University of Illinois American Nuclear Society Student Section

2016-2017

Assembled by the 2016-2017 Executive Board:

Aristidis Loumis, President

Jeremy Mettler, External Vice President

Kelsey Luo, Treasurer

Gregory Romanchek, Secretary

Outreach, Alyssa Hayes

Erik Medhurst, Social Chair

Special Thanks to:

James Stubbins, Department Head

Kathryn Huff, ANS Student Section Advisor

Rizwan Uddin, Associate Head of Academic Programs & former Student Section Advisor

Becky Meline, Coordinator of Academic Programs

Barbara J. Russell,

Susan Mumm, Media Specialist



ILLINOIS
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

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1. INTRODUCTION

The University of Illinois student section of the American Nuclear Society has had one of our most successful years in history. While the number of entering freshmen in the department of Nuclear, Plasma, and Radiological Engineering (NPPE) has remained constant over the last few years, our students section has still been able to increase in chapter participation. We have done this by focusing on (1) building a strong base of freshmen and sophomore students who will continue to participate throughout their entire undergraduate education, (2) providing social events to build a community that people feel comfortable in, and (3) expanding the number and type of off-campus trips and professional development events available for students to attend.

ANS-Illinois was able to add a variety of new events this past year, while still maintaining the traditional events like visiting the ANS Student Conference, participating in the College of Engineering's "Engineering Open House", Boy-Scout Merit Badges, Thanksgiving Potluck and more. We have also maintained a strong relationship with the department of Nuclear, Plasma, and Radiological Engineering (NPPE), and are currently developing a relationship with our governing body, the Engineering council. We maximized on events hosted by other registered student organizations (RSOs) that can have great impact and benefit on our own chapter, in terms of networking and education, as well as reaching out to other non-engineering related organizations on campus.

In the fall of 2016, the ANS-Illinois Section became a member society of the Illinois' Student Sustainability Leadership Council (SSLC) for the first time, which consists of many environmental registered student organizations on campus. In order to involve itself in energy policy, nurture relationships with local environmental groups, educate the public on environmental issues related to nuclear, and support the University of Illinois' effort to achieve carbon neutrality by 2030.

Through nurturing this relationship we were able to aide the state of Illinois in preventing the closure of Clinton and Quad Cities Nuclear Power Plants, by partnering with our local ANS section that organized the leadership speaker series "Nuclear Power: What it means in Illinois", and other NGO's like Environmental Progress and Generation Atomic. We worked with the Political Action division of Students for Environmental Concerns (SECS), SSLC, Next-Gen Climate and the sierra club's student section of Beyond Coal in order to agree on statements to send out to legislators and video statements that led to our chapter receiving the 2016 NAYGN Nuclear Advocacy Award. We got to help aide in the fight for a clean energy future, which is allowing Illinois to set a good example for other states to follow.

A list was compiled of each ANS member, and what his or her plans for the summer were. Out of our members, no student was left without pursuing a full-time job opportunity, having an internship over the summer or being on campus doing summer school and undergraduate research with faculty.

In summary, ANS-Illinois has shown an incredible amount of growth in the past year, even beyond the success it was the year prior, in membership, events, and especially outreach. We hope you consider our chapter for the honor of winning the Samuel Glasstone Award.

2. SECTION MANAGEMENT



Figure 1: The 2016-2017 ANS-Illinois Student Section. Left to right, Jeremy Mettler, Gregory Romanchek, Alyssa Hayes, Aristidis (Aries) Loumis, Kelsey Luo, and Erik Medhurst.

At the core of any strong ANS student section is its leadership. This year, ANS-Illinois had an executive board that was extremely dedicated to growing ANS membership, advocacy and outreach, and providing more events than recent years. Unlike last year, the ANS-Illinois executive board increased by 3 officers. The positions for Outreach, Public Relations and Internal Vice-President were created.

This section details the leadership of our student section and the interaction we have with the Department of Nuclear, Plasma, and Radiological Engineering and the College of Engineering at the University of Illinois. Without these crucial elements, the student section would not be nearly as successful as it has been this past year.

2.1 EXECUTIVE BOARD

This year's executive board was made up of eight positions. Each position is detailed below, along with the board member that filled that role in the 2016-2017 school year.



Aristidis (Aries) Loumis, President:

Aries is a senior in Nuclear, Plasma & Radiological Engineering, with an emphasis in Power Safety and the Environment. His main academic interests are in security, non-proliferation, fuel cycle, innovation in nuclear science, entrepreneurship, energy policy and environmental sustainability. This is his second year with an ANS Leadership position, coming from his last position as secretary. His goals as chapter president are to improve local and national advocacy of progressive energy policies, enhance communication between the department of Nuclear, Plasma & Radiological Engineering and provide academic and professional development to our members



Jeremy Mettler, External Vice President:

Jeremy is a junior studying Nuclear, Plasma, and Radiological Engineering, with a minor in physics and a concentration in Plasma and Fusion Science. Outside of classes he enjoys spending time researching at the Center for Plasma Material Interactions on a variety of projects. His main goal in the society is to provide everyone with opportunities to attend as many fun and interesting trips as possible.



Daniel Martin, Spring 2017, Internal Vice-President

Daniel is a senior in Nuclear, Plasma & Radiological Engineering, with a concentration in Plasma & Fusion Science. Daniel is responsible for nurturing our relationships with the engineering council and the college of engineering by relaying information and opportunities from the greater education system in order to maximize the opportunities available to his chapter's members.



Shanna Bobbins, Fall 2016, Internal Vice-President

Shanna Bobbins is graduating from the Nuclear, Plasma, and Radiological Engineering Department here at UIUC in December and she hopes to start a career in nuclear power generation. Through her role as Internal Vice President, Shanna works to bring advocacy and educational opportunities to ANS members as well as encourage students to participate in events run by Engineering Council or the College of Engineering. Aside from her classes, Shanna spends her time working at a research lab, volunteering for other events on campus, and skiing.



Kelsey Luo, Spring 2017 Treasurer:

Kelsey Luo is a freshman in Nuclear, Plasma and Radiological Engineering. Her academic interests include big data and security. As treasurer, she hopes to help other ANS members be more involved in order to maintain a strong community.



Siobhan Fox, Fall 2016, Treasurer

Siobhan Fox is a sophomore in Nuclear, Plasma, and Radiological Engineering. Her primary academic focus is International nuclear policy. Through serving as treasurer, she hopes to ensure all members are provided with the resources needed to gain the most out of the ANS activities they participate in.



Gregory Romanchek, Secretary:

Gregory Romanchek is a senior double majoring in Physics and NPRE. He conducts research through the physics department focusing on the super-resolution imaging and computational analysis of postsynaptic neurotransmitter receptors. Gregory hopes to lend his talents towards maintaining and improving the general organization and communication of ANS in order to give back to the welcoming and supportive community. He enjoys listening to and playing melodic metal. He has hopes to enter a doctorate program in Medical Physics.



Alyssa Hayes, Outreach

Alyssa Hayes is a sophomore in Nuclear, Plasma, and Radiological Engineering. She researches fractals and radical densities in plasmas at the Center for Plasma Material Interactions. She hopes to expand on opportunities for members to spread nuclear advocacy and educate the public.



Erik Medhurst, Social Chair:

Erik Medhurst is a senior in Nuclear, Plasma, and Radiological Engineering with a concentration in Radiological Engineering. When he's not in class or researching big data radiation detection applications, you can find him on the handball courts

or playing on a tenor pan steel drum. As a fervent advocate of nuclear energy, you will find your social chair out and about spreading information hotter than the core of a PWR reactor. Find him for a hearty laugh at happy hour on Fridays.



Stefan Tosic, Public Relations:

Stefan is a senior in Nuclear, Plasma, and Radiological Engineering with a concentration in Radiological Engineering. He helps connect students with internships.

2.2 COMMITTEES

ANS committees exist to allow general members to get more involved with the society than just attending events. The four committees – Underclassmen Round Table, Women in Nuclear, Social, and VP all serve different purposes and often draw from different pools of students.

The Underclassman Round Table (URT) was an initiative started in 2013 to combat low involvement from freshmen. It has since been expanded to include all underclassmen. Other than the executive board member that oversees the committee, the group is entirely underclassmen-lead. Every year, the URT makes an EOH project (see section 7), which gives students hands-on opportunity to build something and an opportunity to teach members of the public about nuclear science and engineering.

The Women in Nuclear (WiN) committee is a new initiative of the 2015-2016 school year. Aimed at increasing participation of women in ANS and encouraging young girls to get interested in science, technology, engineering, and math (STEM) and specifically nuclear science. WiN has held professional events and attended trips. This committee strongly encourages all women in the Nuclear, Plasma, and Radiological Engineering Department to join, but is also welcome to any men (or non-gender conforming people) that are interested in the goals of the committee.

The Social Committee is responsible for planning and coordinating social activities such as cookouts, paintball, rock climbing, and other extracurricular activities that benefit the American Nuclear Society. During the weekly meetings, the Social committee creates new ideas for social events that involve both undergraduate and graduate students from nuclear society as well as other student organizations.

The Vice Presidential committee has played a key role over the past year in making sure each trip and outreach event runs smoothly. Members of the committee volunteer their time helping book hotel rooms for trips, coordinate events with community members, and design presentations for Boy Scouts seminars. Their involvement in the committee has been pivotal in making sure that the Vice President is able to complete his duties effectively. This committee met infrequently in the fall semester and weekly in the spring semester, as large outreach events like Boy Scout merit badges or Engineering Open House (see: Section 7) are all held in the spring semester.

2.3 FACULTY ADVISOR & INTERACTION WITH THE UNIVERSITY

ANS-Illinois is lucky to have a fantastic relationship with our department and faculty advisor. Our faculty advisor, Professor Katy Huff, stays up to date with our chapter and even attends some of our events. Our students have the opportunity to interact with her often at our weekly happy hour, and her door is always open for questions on section management. She has been integral in increasing students voice within the department and also pioneering our sections committee meeting to construct a proposal for the next student conference.

We also maintain a strong relationship with the NPRE department at Illinois. Many events are co-hosted with the department, like seminar events (Section 4) and the annual awards banquet (Section 9). A majority of our off-campus events are partially/fully funded by the department, which allows us to bring a larger amount of students than we would normally be able to with our own funds.

Finally, our student section is recognized as an official registered student organization, both at the University level, and the College of Engineering level. At the university level, we are eligible to obtain funds from a pool of money set aside by the Student Organization Resource Fee (SORF), and at the college level we can obtain Engineering Council funding. By being registered at these levels, we are also able to participate in events that allow us to advertise our society at the beginning of the year.

3. OPERATIONS & MEETINGS

This section details the administrative details that keep the section running.

3.1 WEEKLY EXECUTIVE MEETINGS

Every Sunday our chapter held an executive board meeting. This meeting was used to brainstorm new events, delegate tasks, keep up to date on what each board member is doing, and recap events that happened in the previous week.

An agenda was made and placed in the ANS-Illinois google drive such that every member could pull up the agenda and follow along. An example can be seen to the right.

These agendas were also used by the secretary to take meeting minutes, so any board member could go back to the Agenda folder and see the meetings minutes if they forgot what they needed to do that week.

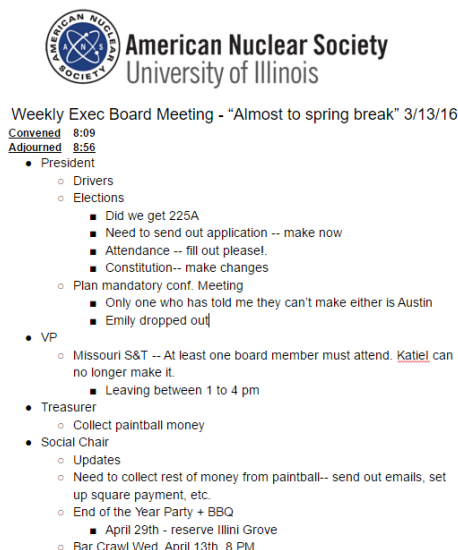


Figure 2: Example of exec meeting agenda

3.2 GENERAL MEETINGS



Figure 3: ANS General Meeting First & Last Slides examples

General meetings were held on an irregular basis, depending on the density of upcoming events. Early in the fall semester, general meetings were biweekly or triweekly, but later became about monthly. Outside of email and social media communication, this was used as the most efficient way to communicate information to the general body. All trips and large events were first announced at general meetings, and then were added to newsletters and other communication methods later.

To encourage attendance, the first general meeting had free pizza, and most important meetings had cookies or some other food for members to eat. This was implemented in the previous year, and has likely helped with the spike in attendance that has been seen in this past year.

Meetings always have PowerPoint presentations, which are sent out with the weekly newsletter for people who cannot attend meetings.

3.3 COMMUNICATION

One of the goals of the University of Illinois Student chapter was to increase communication and make getting involved a more relaxed and friendly process. Social media outlets were used more heavily, and weekly announcement at the Undergraduate seminar and Senior Design courses were given. ANS uses a weekly email newsletter as the primary form of communication with the general body. Sent out at the beginning of each week, the newsletter notifies members of new opportunities and events hosted by the American Nuclear Society. It contains information on professional development within the nuclear sector, volunteer opportunities, workshops and research. Students can also find information on the ANS-Illinois website at ANS.npre.illinois.edu

Unlike previous years, social media was utilized very heavily in communicating with students. ANS-Illinois runs both a Facebook page, Facebook group, and twitter account with all information being posted in all three. These pages were utilized for the purpose of advocacy and communicating news and events to our members.

Finally, in order to increase productivity on the executive board's side, we began using an application called slack, ansuiuc.slack.com, which is a group chat and file sharing system. This system gave us the ability to integrate slack with our Google calendar, create polls, set reminders, and share files through Google drive all within the app.

3.4 FUNDING & FINANCIAL PLANNING

Our ANS Student Chapter is closely intertwined with the Nuclear, Plasma, and Radiological Department (NPRE) at the University of Illinois. Due to this relationship, the majority of our trips and events are supported by the department. NPRE has contributed over \$10,000 to transportation and lodging for trips such as the 2016 ANS Student Conference, Clinton Generating Station, Advanced Reactor Summit at Argonne National Laboratory, and Oak Ridge National Lab. In addition to this, we are able to apply for other on-campus funding sources like the Student Organization Resource Fee (SORF) or Engineering Council (EC), which provides funding for Student Organizations. Over this past year, we have received around \$1500 from these sources, which was put towards our trips. Our final source of funding is from member dues, which consists of a \$10 payment per semester to remain an active member, which generates around \$2000 a year.

Table 1: Summary of Yearly Budget for 2015-2016

Total Income	\$12,115.27
Total Expenditures	\$10,440.0
Balance For Next Year's Board	\$1675.27

Many of our chapter's events are annual, such as our opening social events and Engineering Open House (EOH). Events like these allow for immediate allocation of funds. For other events that are planned on a monthly or semester time frame, the funding is considered on a case-by-case basis. This process allows for principal events, like professional events, to be considered first. This year, we can proudly say, none of our events had any major funding issues.

Shirts are another way that our chapter raises money. For example, the shirts shown in Appendix B are usually sold a few dollars above cost, which provides some extra funding for events.

4. PROFESSIONAL EVENTS

One of the most important foundations of a student section is having professional development opportunities available for students. These events are usually aimed at helping students learn more about internships and jobs in the nuclear, plasma, and radiological engineering (NPRE) fields.

Many of the other professional events were aimed at helping students better prepare to be future professionals in the Nuclear, Plasma, and Radiological engineering fields. The simplest event was the resume reviews held by President Aries Loumis.

Students also had the opportunity to interact with companies at seminars held throughout the year. Companies like Exelon Generation, the Nuclear Navy, Bechtel Marine, Propulsion, Argonne National Lab, and Oakridge National Lab gave seminars. In addition to presentations given by the companies, there was often time for students to interact with their representatives, hand out their resumes, and ask questions.



PIZZA PI DAY WITH EXELON

3/14 6 PM, Transportation Building

Figure 4: Exelon Nuclear Internship Pizza Info Session

The creation of the position of Public Relations gave the responsibility of professional development to an officer. These opportunities included maintaining a list of all current internships and scholarships held through the ANS website, as well as pushing other opportunities advertised on campus through the Science Undergraduate Laboratory Internships (SULI) and the Higher Education Research Experience (HERE), as well as the Engineering Career Fair and Expo.

A list was compiled of each ANS member, and what his or her plans for the summer were. Out of our members, no student left without having an internship over the summer or being on campus doing summer school and undergraduate research.

5. TRIPS AND CONFERENCES

A core pillar of the ANS student section is the opportunities available to students to take off-campus trips. These trips help students develop a better understanding of the opportunities available in the nuclear industry, and often help students develop a better understanding of their future career interests.

5.1 NUCLEAR POWER: WHAT IT MEANS IN ILLINOIS SPEAKER SERIES



Figure 5: Nuclear Power: What it means in Illinois Speakers

ANS students, in partnership with the local ANS student section, including NPRE Professors James Stubbins and Rizwan Uddin were able to plan a trip for the attendance of ANS student members to attend a summit for advocacy and education in nuclear energy in Illinois. A host of state and national policy leaders outline the sustainability and economic impacts of nuclear energy in Illinois in light of proposed closures of nuclear generation plants in the state. Co-sponsored by the Department of Nuclear, Plasma & Radiological Engineering at Illinois, the AFL-CIO, and North America's Building Trades Unions, on Tuesday, October 18th, 2016. Nuclear Power: What it means in Illinois. The video for this entire leadership series is available on the ANS-Illinois Student Youtube channel, which has been referenced in articles, and is currently on the news page of nuclearpowersillinois.com <https://www.youtube.com/watch?v=NXDpeOTMchc>

A summary of the event can be found at <http://nppe.illinois.edu/news/nuclear-power-what-it-means-illinois>



Figure 6: DOE's John Kotek (Right), Congresswoman Cheri Bustos (Left), Lonnie Stephenson of IBEW (center)

5.2 CLINTON POWER STATION

Another trip that always gains a lot of interest is the yearly trip to a commercial nuclear power plant. Last year ANS-Illinois toured Braidwood, a Pressurized Water Reactor, so this year our chapter decided to tour Clinton Power Station, a Boiling Water Reactor. Clinton is also the closest commercial reactor to the University of Illinois.



Following

It was great hosting these U of I #nuclear engineering students at #ClintonPowerStation! @Illinois_Alma



Figure 7: ANS-Illinois students visiting Clinton Power Station after plant tour, posted from Exelon Nuclear's Twitter Page

In addition to the trip to Clinton, ANS-Illinois also set up a professional event with Clinton's North American Young Generation in Nuclear (NAYGN) chapter to learn more about internships/jobs available at nuclear utilities

(Exelon specifically) and to give insight on what it's like to work at a commercial plant. This event was held in Champaign, which made it much easier for students to attend than having to go off campus.

5.3 SAVE THE NUKES SUMMIT



Figure 8: Save the Nukes Leadership Summit, 2016, Down town Chicago.

ANS, NAYGN, Mothers for Nuclear, an array of other pro-nuclear groups and Environmental Progress advocated against the shut down of Clinton & Quad Cities. Two nuclear plants in Illinois which supply 23% of Illinois' carbon free energy. Renewables currently supply 4% of Illinois' total energy, and it is expected to increase 25% by 2030. If we are to make our carbon reduction standards to a third of what they were in 2005 we cannot get rid of nuclear. We have to focus on phasing out coal and natural gas.

5.4 ANS WINTER MEETING



Figure 8: Winter Meeting ANS-Illinois students

As expected of student sections, ANS-Illinois sent 6 representatives to the ANS Winter Meeting to represent the University of Illinois at the Student Sections Committee (SSC) meeting. Katie Mummah was on the ANS scholarship she held, she didn't require any additional funding to attend the

conference, adding no additional financial commitment from the section. In addition to attending the SSC meeting and technical sessions, Katie also presented her summer research at the student poster session. It was a great opportunity for all of our representatives to network with other sections, attend committee meetings and integrate Illinois within the nuclear community.

5.5 ADVANCED REACTOR SUMMIT - ARGONNE NATIONAL LAB



Figure 9: University of Illinois ANS Members at Oakridge National Lab

Now in its fourth year, the Advanced Reactors Summit IV returns to the world-renowned Argonne National Laboratory after successive ground-breaking Summits at the University of Massachusetts Lowell and Oak Ridge National Laboratory. The Summit IV will continue its focus on showcasing technology developers and advancing solutions on the cost and deployment timeframe of advanced reactors, as well as practical ideas and concepts that have the potential of significantly improving advanced reactor design, deployment, and operations.

5.6 OAKRIDGE NATIONAL LAB



Figure 10: Students briefed on extensive schedule ahead at Oak Ridge National Lab. Speaking ANS Member Dr. Lauren Garrison of the Nuclear Materials Science and Technology Group, Materials Science & Technology Division, Oak Ridge National Laboratory

Hosting the students, Garrison's group within Oak Ridge's Physical Sciences Directorate received help from the lab's Reactor & Nuclear Systems Division, Computing and Computational Sciences Directorate, Nuclear Security & Isotope Technology Division, Fusion & Materials for Nuclear Systems Division, Neutron Sciences Directorate, and Energy & Environmental Sciences Directorate.

Twenty Nuclear, Plasma, and Radiological Engineering students from the University of Illinois got the opportunity for a first-of-its-kind trip in February to Oak Ridge National Laboratory to tour facilities and meet with lab personnel, including NPRE alumni.



Figure 11: ANS Illinois Students touring ORNL'S High Flux Isotope Reactor.

5.7 ANS STUDENT CONFERENCE



Figure 10: Thirty-Nine ANS students in attendance at the 2017 ANS Student Conference, Pittsburgh, PA from the University of Illinois.

ANS-Illinois' largest event of the year was attending the 2017 ANS Student Conference in Pittsburgh. The executive board encouraged anyone and everyone to go, and really advertised the event much more than in previous years. The result was 39 members of ANS-Illinois attended the conference, down from the record of 52 in 2016 held by Illinois, but still up from Texas A&M's 25 in 2015. Since attendees were required to become national members, this also gave the University of Illinois a large bump in national members.



Figure 11: Illinois booth at the ANS 2017 Career Fair. Outreach Alyssa Hayes (Left), ANS Advisor Katy Huff (Right), and ANS member Dario Panici (center)

While many attendees were among the most involved members, almost half of the attendees were students that had not been very involved in the chapter. In addition to this, over 20% of the attendees were freshmen/sophomores. This is very encouraging, since young members are often the least involved and often have very low participation in the student conference.

As seen in figure 16, our chapter also participated heavily in the technical program at the conference. Illinois did a great job showcasing our great students. Not only that, but we won 4 technical tracks, 2nd place for best overall paper, and a commendation for service and leadership even with the loss of students from 52 in 2016 to 39 in 2017. We would have brought nearly 60 students, if our department could afford it, but getting to Pittsburgh was much more costly than getting to Wisconsin-Madison from Illinois. Overall this was an amazing experience for all 39 students that participated, and also increased section active membership for the last few months of the school year.

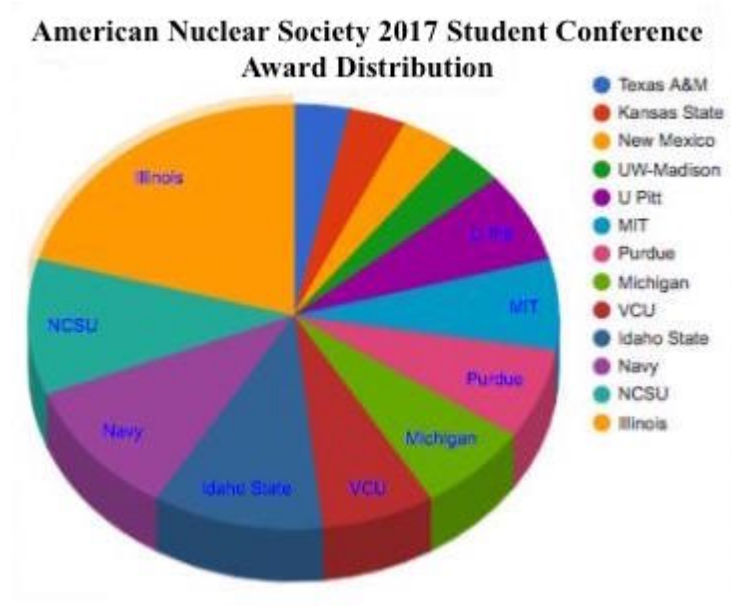


Figure 12: American Nuclear Society 2017 Student Conference Awards Distribution.

Through the opportunities at the ANS Student conference, Illinois students were revitalized with energy on how to best get involved in their own local section, as well as the opportunities that await them in the professional world.



Figure 13: University of Illinois Students at awards banquet, from left to right, Kelsey Luo, Zahra Hanifah, Katie Butler and Isabella Iaccino.

6. CHARITIES

6.1 50 BILLS 50 STATES PROJECT

This year for Valentine's Day ANS formed a Valentine's Day charity. For two weeks prior to the holiday, ANS reached out to the student body of Nuclear, Plasma & Radiological Engineering and to University of Illinois in general. ANS Chapter President Aries Loumis contacted the aids healthcare foundation, which were able to donate 2,000 red condoms to the charity and also attended meetings and partnered with the student LGBT group Out in Science Technology Engineering and Mathematics (OSTEM). The condoms collected were used in order to create condom roses, (See Appendix B) which are both usable condoms and usable pencils. The student body was encouraged to volunteer with ANS, with the promise that they would receive a condom rose themselves for participating. ANS president Aries Loumis along with ANS member Jonathon Helck, and other volunteers went to the local bars to hand them out, with permission. See figure 14, they were able to sell patrons of the bar the condom roses in order to raise money for 50 bills in 50 states, a D.C. based 501(C)(3) public charity; dedicated to the national movement to end conversion. Thanks to the efforts of both the student body of Nuclear, Plasma & Radiological Engineering, local volunteers, OSTEM and ANS they were able to raise a total-net of \$364 dollars for the 50 bills in 50 States Project.



Figure 14: Volunteers put together condom roses for a fundraiser for the 50 bills in 50 state project.



Figure 15: ANS Members raise money by selling condoms roses outside of local bars.

6.2 ENVIRONMENTAL PROGRESS – YELLOW CAKE BAKE SALE



Figure 16: Environmental Progress - Yellow Cake Bake Sale

Women in Nuclear Committee as well as ANS planned a joint yellow-cake bake sale in order to raise funds for the Californian based NGO, Environmental Progress.

7. OUTREACH EVENTS

With a lot of misinformation out there about nuclear science and engineering, outreach is one of the most essential parts of an ANS student section.

7.1 BOY SCOUT MERIT BADGE

Public outreach is a key part of our chapter's commitment to nuclear education and understanding. Key to our ability to achieve this goal each year is the Holy Cross merit badge session. This year, our chapter sent volunteers to instruct over 40 boy scouts of various ages on a variety of nuclear related topics. Each student attended one of two 4-hour merit badge sessions, and had the opportunity to learn about subjects including the structure of the atom, radiation detection, and the safety of nuclear power. This informative session allowed us to dispel some of the most common myths regarding nuclear energy, while also inspiring youth to become more involved in science of all kinds. Not only did we have the opportunity to instruct youth, but a number of parent volunteers in attendance were thoroughly impressed as well. Several parents approached our instructors this year to express their surprise at learning just how safe nuclear power is, helping to change their minds regarding a topic on which they had held negative opinions for years. This is a great example of our chapter's commitment to public outreach and education.

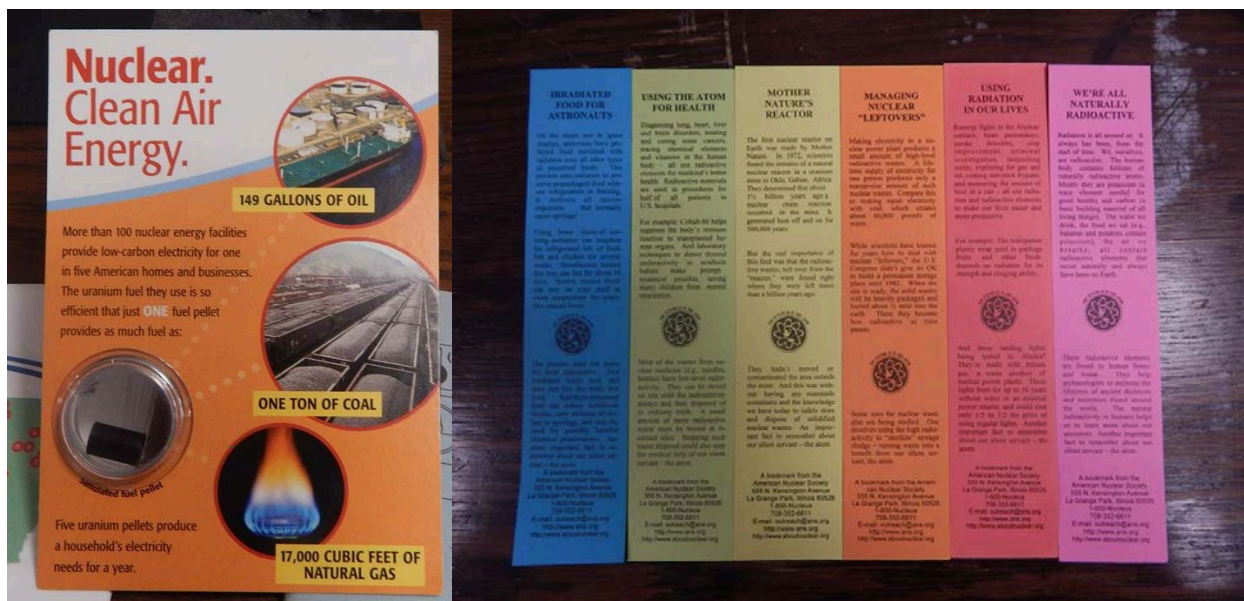


Figure 17/18: Examples of bookmarks/handouts to Boy scouts as they learned about nuclear science and radiation.

7.2 ENGINEERING OPEN HOUSE (EOH)

Engineering Open House (EOH) each year serves as a key opportunity for our Chapter to inform the public about just what it is we do as nuclear engineers. EOH is one of the largest events of the year for the University of Illinois, with tens of thousands of outside visitors coming to Champaign to learn

about all types of engineering. With 250+ exhibits from every engineering discipline, this is a huge event, which also boots being completely student-run. ANS always has an exhibit, and this year held two.

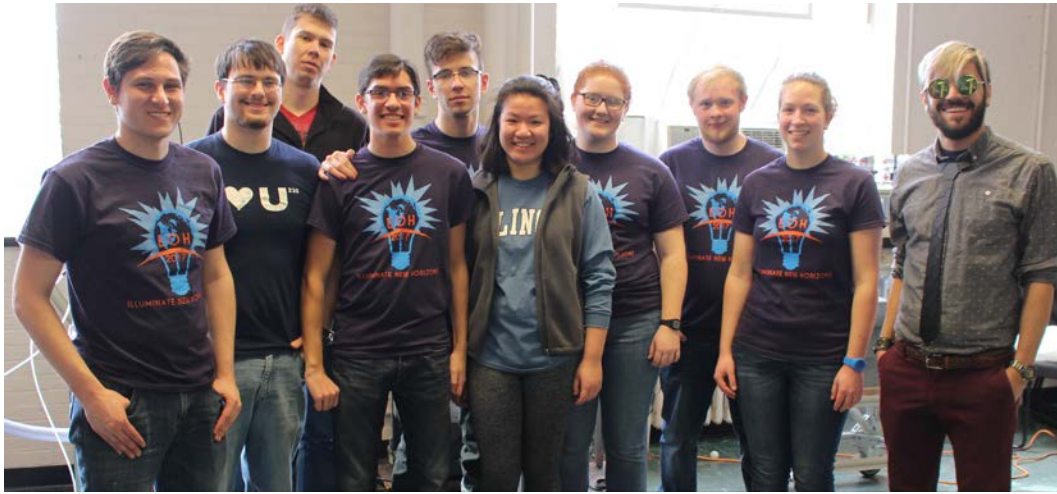


Figure 19: A group of EOH volunteers poses at the end of two days of hard work exhibiting for Engineering Open House.

Our exhibit this year included demonstrations related to both nuclear fission and fusion, along with radiological engineers. The most popular demonstration with younger visitors was the mouse trap reactor, which demonstrates the chain reaction aspect of nuclear fission. ANS volunteers place dozens of live mousetraps down, each with 1-3 ping pong balls set on top. Then, a plastic cover is placed over all the mousetraps. Finally, a small child in the audience gets to throw a ping pong ball into the small hole in the top to see off the chain reaction. ANS-Illinois volunteers then explain how this is similar to the chain reaction in a nuclear reactor, where each “mousetrap” uranium is set off by one “ping pong ball” neutron, but can produce more than one neutron as it fissions.

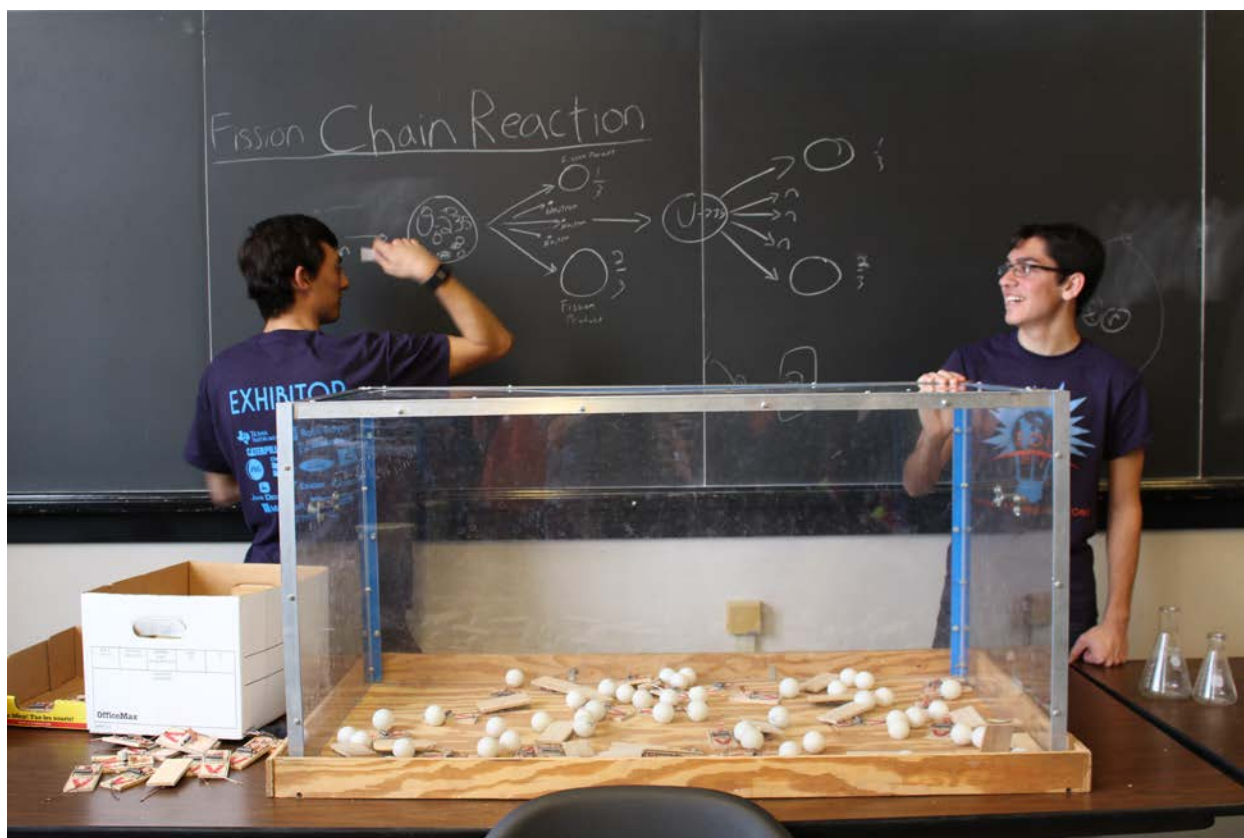


Figure 20: ANS volunteers set up the mousetrap reactor, which takes a lot of time--and nimble fingers!

Other demonstrations included a DC Glow chamber for demonstrating plasma confinement, as well as another crowd favorite: The Magnetic Can Crusher. The can crusher is a demonstration of the power that magnetic fields can have. It consists of a capacitor which, once fully charged, is discharged through several loops of wire wrapped around a can, this sudden discharge causes a magnetic field which interacts with currents that are induced in the metal of the can. This interaction causes a strong inward force to crush the can. While it may not be the most efficient way to dispose of cans, it is an excellent demonstration of magnetic fields and just how powerful they can be.

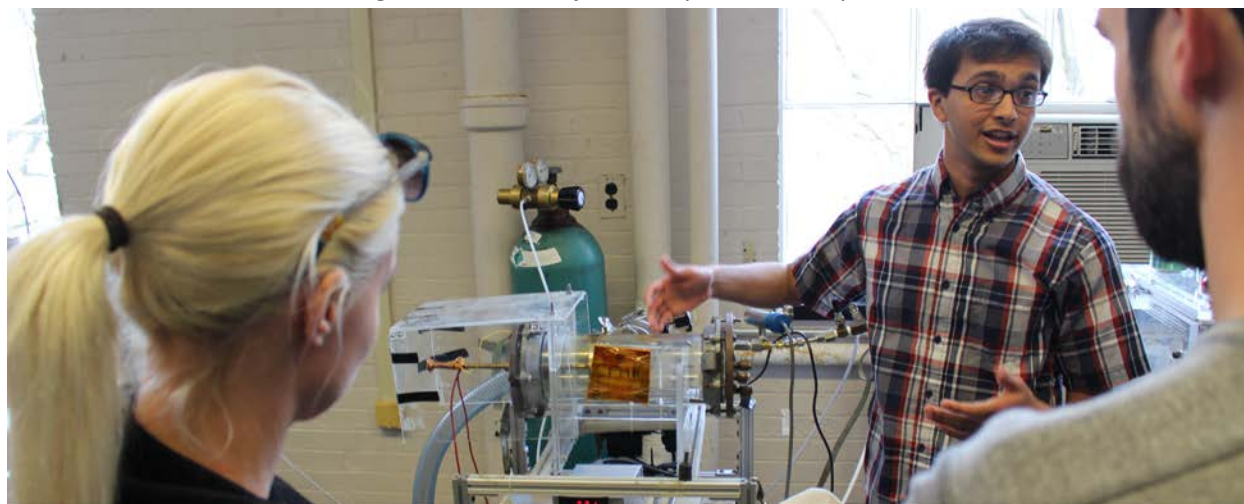


Figure 21: ANS-Illinois Volunteer Dhruval Patel demonstrates the DC glow Chamber, which uses Argon Plasma

This year we also added a demonstration of 3D printer applications for radiation detection. In addition to the demonstrations, our exhibit also included a poster designed to address common nuclear myths, as well as 1950s era Geiger Counters and Photo-multiplier tubes from a disassembled MRI machine. Many visitors were greatly surprised by the number of positive applications of nuclear engineering and nuclear energy, and even the most staunchly anti-nuclear attendees left with a new perspective.

The second booth was held by the Women in Nuclear group, called Nuclear Heritage. This booth presented the small “nuclear museum” created by the department of Nuclear, Plasma, and Radiological Engineering, along with other historical nuclear artifacts. Old Fiestaware plates (with a Uranium oxide glaze) were used to demonstrate the principle of shielding, amazing volunteers that only a bit of plastic was needed to shield the majority of the alpha radiation coming from the plate.



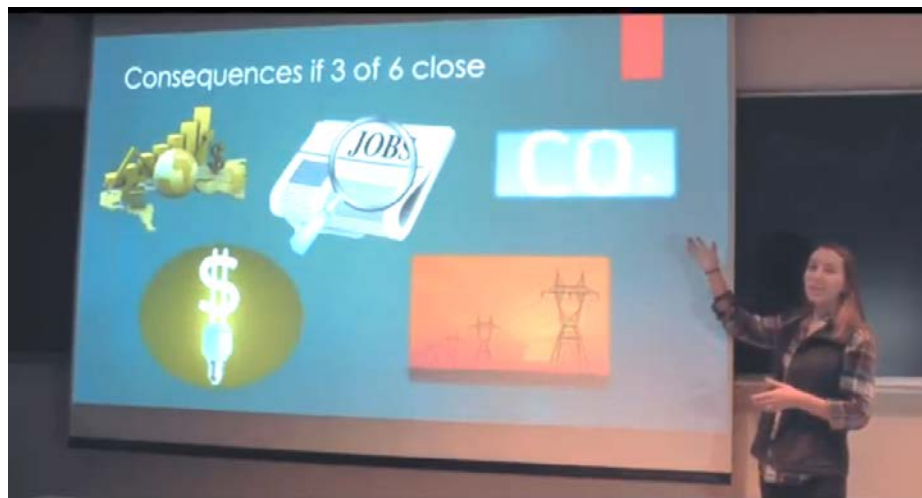
Figure 22/23 (Left) Katie Butler demonstrates the principle of shielding with a young volunteer, and the important of Women in Nuclear, like Liz Meitner, Marie Curie.

7.4 STUDENTS FOR ENVIRONMENT CONCERNS – ENVIRONMENTAL EXPO



NPRE Students Aries Loumis and Alyssa Hayes advocating for the importance of nuclear power in combating carbon emissions at the Students for Environmental Concerns UIUC - SECS environmental expo. This was a good opportunity for ANS to pique the interest of students interested in sustainability and energy.

7.5 NUCLEAR ADVOCACY WORKSHOP



The ANS-Illinois section held a workshop for members and the general public on how best to advocate for nuclear energy. The hard questions, and the facts, before attempting to communicate these messages to the public, the workshop was held to prepare students for local nuclear advocacy.

7.6 NUCLEAR ADVOCACY ON THE QUAD



Help us fight for
Clean Energy in Illinois!

The ANS-Illinois section advocated and educated people on the quad about nuclear science and to urge people to contact their local legislators in order to help stop the closure of Clinton and Quad Cities nuclear power plants. We worked with the non-profit “Environmental Progress” and made a new page on our website dedicated to nuclear advocacy (see fig. 24). This module connects visitors, via zip code with their local legislators to send tweets and emails in order to advocate for nuclear energy. Combined, we sent out over 100 emails and tweets when Illinois needed it most for the sake of the Future Energy Jobs Bill, and the premature closure of two nuclear power plants in the state.



American Nuclear Society
Department of Nuclear Plasma & Radiological Engineering
University of Illinois

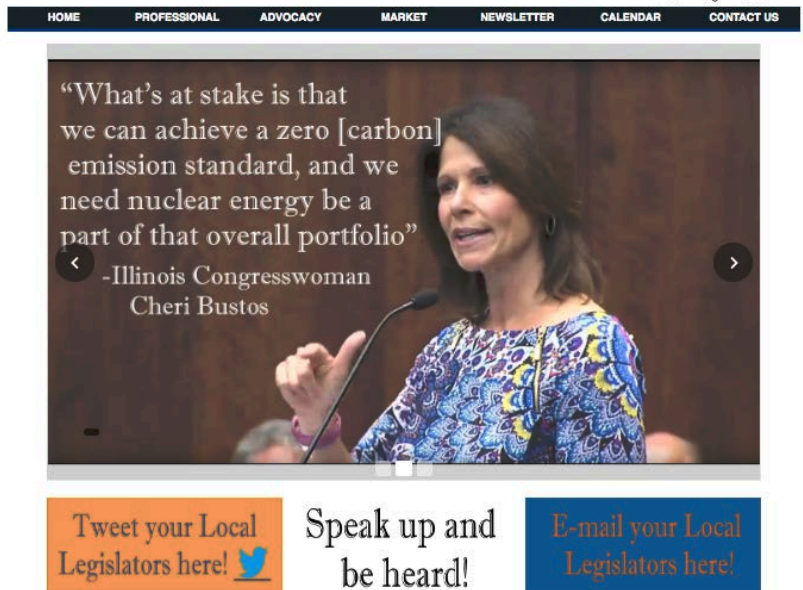


Figure 24: ANS Illinois Advocacy Website Page, with modules to tweet and email local legislators.

8. SOCIAL EVENTS

With such a small industry, the students in ANS today will be peers tomorrow, so ANS-Illinois puts a lot of weight on social events so the students can get to know each other.

8.1 BBQ

Because the Nuclear, Plasma, and Radiological department is one of the smallest here at the University of Illinois, it is extremely beneficial for incoming students to take part in the beginning of the year cookout. This event allows newly admitted students in the department a chance to talk and mingle with other students who have been in the department as well as faculty members. This event takes place the second week of classes, so the workload is not overbearing and many research opportunities are still available. The cookout provides an opportunity to also interact with professor in a more casual and laid back environment. Bags, Frisbee, and other outdoor activities are typically played during the event to promote social activity between the students. Figure 27 shows a small portion of the turn out the cookout.



Figure 25: ANS members have fun at the ANS fall BBQ.

In the spring, an end of the year BBQ is also held for all members of ANS. This event winds down the academic year in the same fashion that the first cookout started the year. A local area, Illini Grove, is rented out for the festivities. Illini Grove is a nice relaxing location that has basketball courts, a sand volleyball court, and plenty of space for cooking out. This cookout is a chance for students to talk more about plans over the summer with one another along with blowing off steam with professors.

8.2 BOWLING



Figure 26: ANS Member Katie Butler bowls during one of their social events.

Bowling was an event that was requested by many of the members of the organization. Most of the participants had to rent equipment from the facility, while the more experienced students brought their own shoes. While most of the students that went on the trip had little to no experience with bowling, they were successful on the event due to the more seasoned students walking them through what to do.

After the team building and all the basics were taught, a friendly competition broke out resulting in the formation of teams between members.

8.3 THANKSGIVING POTLUCK



was required to bring a dish that they could share with friends.

Students come to the University of Illinois from all of the United States, because of this, many do not have the opportunity to make it home for the holidays. This was the driving force behind this year's potluck. Student who were not able to make it home and have a Thanksgiving dinner with their families were encouraged to come the event. Every attendant

8.4 HAPPY HOURS



Figure 27: ANS Students and NPPE Faculty enjoying Friday happy hour at Legends, a popular local bar.

ANS faculty advisor Clair Sullivan.

Every week on Friday the chapter hosted happy hour at a local area. Every week students and faculty alike would get together and talk about what had happened during the week. This is a great way for students and faculty to co-mingle, and get acquainted. Many times these events led to students learning more about professors, their research and the many research

opportunities that they offer. At least one faculty member was in attendance almost every week, with frequent appearances from

8.5 21 AND OVER EVENTS



While most members are younger than 21 years old, the chapter does have some older students. Some events that were targeted for the older crowd were apartment crawls and bar crawls, and the end of the year West World themed party, which was the same day as the end of the year BBQ, flyers can be found in appendix B.

Figure 28: Vice President, Jeremy Mettler has gift taken from him at the White Elephant Holiday Party.

9. ELECTIONS & AWARD BANQUET

9.1 ELECTIONS

In April, it came time to elect the new board for the 2017-2018 school year. This election demonstrated the excitement and strong participation characteristic of this year. President, External Vice-President and Treasurer ran unopposed, see flyer in Appendix B for full list. The new ANS-Illinois board is listed below:

President: Jeremy Mettler
External Vice President: Gregory Romanchek
Internal Vice President: Alec Kleczkowski
Treasurer: Kelsey Luo
Secretary: Jacob Tellez
Social Chair: Jazz Kroeger
Outreach: Isabella Iaccino
Public Relations: Demetrio Velazco

9.2 AWARDS BANQUET

At the end of the year, ANS-Illinois pairs up with the department of Nuclear, Plasma, and Radiological Engineering (NPRE) to host an awards banquet honoring students in the department and the student section. This year, over 40 scholarships or awards were recognized, along with the incoming ANS board. The annual banquet provides a great opportunity for ANS and the NPRE department to honor the amazing students that make the section and department so great. This event is also open to alumni, and alumni/professors who make significant contributions to fields of nuclear science and technology are also honored. This year, ANS-Illinois got to host NEI's vice-president for policy development and public affairs, John Kotek.

10. ATTENDANCE

ANS-Illinois tracks attendance to see how members are participating in events. ANS-Illinois also tracks students using a points system, which weighs different events differently. The points system is listed in table 2, below.

Table 2: Points system for attendance points

General Meeting	1 point
Social event (excluding happy hour & parties)	1 point
Committee Meeting	½ point
Professional Event	2 points
Trip	4 points
Miscellaneous	½ point was added for those that helped run an event like Open Lab Day

Keeping track of attendance allowed ANS-Illinois to reward the most active members at the end of each semester. At the end of the fall semester, the student (not including executive members) with the most points was given a free ANS shirt (see Appendix B), and the student with the 2nd most points was given an ANS poster. At the end of the year, the 3 students with the highest attendance (none were graduating) were given a free membership to ANS for the following year, and the student with the highest spring attendance was given a small gift (they were graduating.) Figure 30, below, shows an example of some of the most active students and the events they participated in.

Name	TOTAL	Total spring	Argonne (4 pts)	WIN 10/1 (1/2)	GM (10/8) (1 pt)	URT 10/8 (1/2)	WIN 10/8 (1/2)	Webinar (2 pts)	URT 10/15 (1/2)	Apt Crawl (1)	URT Social 10/17	The Limited (2)	URT 10/22 (1/2)	Internship Info (2)	Intern. Info presenters (1/2)	Open Lab Day (2)	Lab Day Helpers (1/2)	URT 10/29 (1/2)	Clinton (4)	NAYGN dinner (2)
Alan Williams	38	14.5	x	x	x	x	x	x		x		x		x	x	x	x	x	x	x
John Kotek	27	11	x		x	x	x			x					x	x			x	x
Alyssa Hayes	22	12.5			x	x			x	x	x		x	x		x				
James Loumis	19.5	10.5	x		x	x				x	x		x							
James Loumis	19	9	x							x				x	x	x	x			
John Kotek	18	4.5	x		x	x	x					x	x	x		x		x		
John Kotek	18	10	x	x						x				x	x					
John Kotek	16	8			x					x				x	x				x	
James Loumis	15	7.5	x		x	x				x			x							
James Loumis	13.5	5	x			x			x	x	x		x					x		
John Kotek	13	10						x		x										
John Kotek	11.5	7.5			x					x						x				
John Kotek	10.5	3	x		x	x				x			x							

Figure 29: ANS-Illinois attendance sheet with some of the most active ANS members

11. LOOKING FORWARD: ANS-ILLINOIS IN 2017-18 AND BEYOND

Only the 2015-2016 Illinois section has matched the success of the ANS-Illinois chapter of 2016-2017. The incoming ANS executive board has plans to ensure increasing involvement in the chapter. They intend to do this by planning events much further in advance, and perfecting their calendar instead of being more reckless with time management. Providing more incentives for students to want to get involved through improving the attendance program, and taking on the project of submitting a student conference proposal for the 2019 ANS Student Conference. Committee meetings for conference proposal planning are already scheduled for the summer.



During the meeting with NEI's John Kotek President Aries Loumis and outreach chair, Alyssa Hayes discussed plans with how student chapters can participate in promoting Nuclear Energy.

Figure 30: Students from ANS-Illinois and Nuclear, Plasma, and Radiological Engineering meet with NEI's vice-president for policy development and public affairs, John Kotek for a sit down info session about nuclear energy's future.

The chapter also plans to increase

involvement from the graduate students, and have met with them on ways to include them more in the coming years. In order to give more incentive for future board members to do well. The chapter will begin archiving previous boards, and their accomplishments on the ANS-Illinois website. ANS-Illinois hopes that with the increase in communication and public outreach involvement, will lead to further successes in the future for our chapter. Thank you for considering us for the Glasstone Award.

12. APPENDICES

APPENDIX A: LETTERS OF SUPPORT

APPENDIX B: SHIRTS, FLYERS, MISCELLANEOUS

ANS T-shirts





Students for environmental Concerns - Environmental Expo

Sample of flyers from the year. Note: student addresses are blurred out for privacy



PIZZA PI DAY WITH EXELON

3/14 6 PM, Transportation Building



ANS University of Illinois



Usable Condoms

Usable Pencils



American Nuclear Society



AIDS HEALTHCARE
FOUNDATION

Main Quad, February 10th, 2017

\$3 each rose.
To pre-order online see ans.npre.illinois.edu and go to our market!





ANS Holiday Party!

December 3rd, 8 PM- 12 PM



\$10 White Elephant:

Bring a gift → get a gift! \$10 maximum

Ugly sweater contest:

Winner gets a Starbucks gift card!



American Nuclear Society
University of Illinois



Congratulations to the new officers who ran unopposed

External Vice-President: Greg Romanchek
Treasurer: Kelsey Luo

2017-2018 ANS Executive Board Elections

President

Alec Kleczkowski
 Jeremy Mettler

Internal Vice President

Katie Butler
 Alec Kleczkowski

Secretary

Dario Panici
 Jacob Tellez

Outreach

Alyssa Hayes
 Isabella Iaccino

Social Chair

Isabella Iaccino
 Jazz Kroeger
 Jacob Tellez

Public Relations

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 Demetrio Velazco



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