

ANNUAL REPORT

2023-2024

MAY 1ST, 2024

MISSOURI
S&TTM



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1. Introduction to Chapter Activities

Last year, our chapter focused on the theme of growth. We focused on recruiting as many freshmen as possible and hosting as many social events as possible to keep members involved. This focus worked well for our chapter as our numbers grew greatly compared to previous semesters. However, this was accomplished via a focus on social events. Social events are great for members to get to know one another, and we did host many social events this past year, but we also wished to put a greater emphasis on professional development and community service within our members. Looking back over the year, what we focused on for our section was maturity.

To accomplish this theme, we hosted MCNP and STAR-CCM+ workshops to enhance our member's technical skills. We hosted multiple park clean-up days, a ranch volunteering event, and a cemetery cleaning event to teach our members about community involvement. This year our chapter hosted six industry speakers to give professional talks during our general body meetings. The number of nuclear industry and lab speakers is by far the most in the recent past. Our chapter also hosted study sessions and a mentor/mentee program so upperclassmen could help underclassmen study and get used to life in the Nuclear Engineering department here at Missouri S&T. For the first time, Missouri S&T ANS hosted "Lightning Talks" where graduate students and faculty presented their research to general body members. Since most of our general body members are undergraduates, this gave them a rare opportunity to experience what nuclear research is like and whether it would suit them for a career. This insight into the research field occurred again when our section took a tour of Fermilab. This event was done in tandem with both the University of Michigan and University of Illinois Urbana-Champaign ANS chapters allowing for our members to network with those in the nuclear field but outside of Missouri S&T. We also had three of our graduate students attend the ANS Winter Meeting where one of them presented their research. There are many more events where our members gained valuable professional development outlined in Section 3 of this report.

Although the theme was maturity, we still hosted many social events. At the very start of the semester, we had a Nuclear Trivia night, Smash Ultimate night, and a volleyball day to get potential ANS members acquainted with those in the department. We also hosted Blue Glow Tours at the Missouri S&T Reactor to advertise both ANS and nuclear energy to Missouri S&T students.

Overall, our officer team succeeded in increasing the level of maturity in our members, our activities, and our leadership development by providing them with many opportunities to obtain professional experience and learn about giving back to the community which gives to them. We have most definitely "advanced, fostered, and spurred the development and application of nuclear science, engineering, and technology to benefit society" in both our members and the Missouri public. We look forward to seeing our future successes as our section has had two strong years to establish new norms after COVID and inspire future leaders to keep bringing new things to the table.

2. General Section Information

This section consists of an overview of information regarding the Missouri S&T ANS Section including basic section information (Table 2-1), our advisor's information (Table 2-2), the outgoing and incoming officers (

Table 2-3 and Table 2-4), meeting attendance (Table 2-5), and a summary of our account balance for the 2023-2024 Academic year (Table 2-6).

Table 2-1: General Missouri S&T ANS Information

Section Name:	Missouri University of Science and Technology	
Mailing Address:	222 Fulton Hall, 301 W. 14th Street Rolla, MO 65401	
Website:	ans.mst.edu	
Facebook Page:	facebook.com/ANSMST	
Instagram Page:	instagram.com/sandt_ans/	
Number of Section Members:	Undergraduate: 58	Graduate: 7
Department Enrollment:	Undergraduate: 124	Graduate: 16

Table 2-2: Academic Advisor Information

Name:	Dr. Joseph Graham
Email:	grahamjose@mst.edu
Phone:	573-341-7753
Mailing Address:	231 Fulton Hall, 301 W 14th Street Rolla, MO 65401

Table 2-3: 2023-2024 Outgoing Officers

Position	Name	Email	Term	Year and Major
President	Narrie Loftus	nglwvx@mst.edu	2023-2024	Graduate, NE
Vice President	Sydney Wagner	slwxyv@mst.edu	2023-2024	Junior, NE
Secretary	Tivon Straub	tpsfgk@mst.edu	2023-2024	Sophomore, NE
Treasurer	Eli Boland	ebm87@mst.edu	2023-2024	Graduate, NE
Historian	Liatris Parker-Reece	lmp4zx@mst.edu	2023-2024	Junior, NE
STUCO Representative	Cameron Ashley	cjatbk@mst.edu	2023-2024	Junior, NE
Outreach Chair	Eric Franklin	eafbhc@mst.edu	2023-2024	Junior, NE
Director of Constitution	Isaac McAdams	itmdm2@mst.edu	2023-2024	Sophomore, NE

Table 2-4: 2024-2025 Incoming Officers

Position	Name	Email	Term	Year and Major
President	Sydney Wagner	slwxyv@mst.edu	2024-2025	Senior, NE
Vice President	Teagan Brohman	tfbgmn@mst.edu	2024-2025	Senior, NE
Secretary	Olamide Olabiyi	oao9m7@mst.edu	2024-2025	Graduate, NE
Treasurer	Drew Barringhaus	ajb4hn@mst.edu	2024-2025	Senior, NE
Historian	Molly Herbig	mmhb9p@mst.edu	2024-2025	Junior, NE
STUCO Representative	Adrian Bernabo	abfcr@mst.edu	2024-2025	Sophomore, NE
Outreach Chair	Tivon Straub	tpsfgk@mst.edu	2024-2025	Junior, NE
Director of Constitution	Taiyo Nelson	tnxhf@mst.edu	2024-2025	Sophomore, NE

Table 2-5: General Body Meeting Attendance

Meeting Date	Attendance
8/30/2023	43
9/13/2023	28
9/27/2023	49
10/11/2023	36
10/25/2023	31
11/8/2023	31
11/29/2023	27
1/24/2024	37
2/7/2024	30
2/21/2024	34
3/6/2024	32
3/20/2024	32
4/10/2024	32
Average:	34

Table 2-6: 2023-2024 Budget Overview

Line Item	Debit/Credit	Cost per Item
Initial ANS Account Balance	Credit	\$2561.09
Fundraising	Credit	\$6965.97
Glasstone Monetary Award	Credit	\$600.00
Ferguson Grant	Credit	\$2748.59
Nationals Membership Allocation	Credit	\$525
Student Activity Finance Board	Credit	\$2282.11
Fundraising Supplies	Debit	-\$2407.06
Food for General Body Meetings	Debit	-\$339.92
Outreach Supplies	Debit	-\$5616.12
Conference Costs	Debit	-\$8220.04
Expected FS2024 Starting Balance (Pending Travel Reimbursement)		\$14,512

This year was an extremely successful year for Missouri S&T ANS budget-wise. Our chapter was the proud recipient of both the Glasstone Award and the George A. Ferguson Motivational Grant. Our chapter also received a large allocation from the Missouri S&T Student Activity Finance Board (SAFB) and over \$500 for our national membership dues. In addition, our chapter raised nearly \$7,000 fundraising giving us a profit of ~\$4,500. This achievement was made possible through our merchandise sales throughout the year along with the crowdfunding campaign we set up through the school. Even after all the fundraising, our chapter still has merchandise available to sell throughout some of FS24-SS25. Because we raised so much money, our department rewarded us with a \$4,000 contribution to the student conference. This allowed us to bring along 33 Missouri S&T and 8 K-State members to student conference.

Our chapter was also able to purchase many outreach materials with the Ferguson Grant and SAFB allocations. Some items purchased include 2 GM counters, 2 cloud chambers, 2 needle sources, 5 disk sources, Fiestaware, shielding, a Nuclear Science Week vinyl banner, an energy comparison and fuel cycle retractable banner, and much more. Our chapter always had to rely on professors to lend their demonstration materials to us for outreach events, but now we have our own outreach materials so we can have more freedom and flexibility when preparing for outreach events.

After all these outreach capability upgrades, our chapter is still set up to be in the best financial state it has been in the recent past!

3. Major Activities

The Missouri S&T ANS chapter organized numerous activities over the semester. These initiatives aimed to promote public awareness of nuclear energy, community and university service, professional growth, social engagement, section management, and industry support.

3.1 Summary of Major Activities

This section provides an overview of the main events and activities arranged by Missouri S&T ANS. Table 3-1 outlines the categories of activities, their corresponding numbers (to be referenced in Tables 3-2 and 3-3), and the count of activities within each category. Tables 3-2 and 3-3 detail the events, dates, attendance figures, activity category numbers, and associated costs for each significant event. For comprehensive insights, including detailed descriptions, images, and key takeaways from major events and activities, refer to Sections 3.2 and 3.3.

Table 3-1: Activity Categories

Category	Number	FS2023 Event Amount	SS24 Event Amount
Public Information	1	14	11
Community/Public Service	2	5	4
University Service	3	18	7
Professional Development	4	10	8
ANS/Nuclear Industry Support	5	6	5
Social Events	6	18	9
Section Management	7	4	1

Table 3-2: Overview of Fall 2023 Section Activities

Index	Activity	Date	# of Participants	Category
1	O-Week: Fulton Hall Booth	August 16th-17th	>50	3
2	O-Week: Trivia Night	August 16th	9	3, 6
3	O-Week: Smash Game Night	August 17th	6	3, 6
4	O-Week: Blue Glow Tours	August 18th	35	1, 3
5	O-Week: Volleyball Day	August 19th	9	3, 6

6	NERS Department Ice Cream Social	August 23rd	30	3, 6
7	MinerRama	August 25th	>70	3
8	Fugitive Beach Trip	August 26th	16	6
9	Barbenheimer Social	September 1st	12	6
10	Schumann Park Clean - Up	September 2nd	9	2
11	NERS Department BBQ	September 9th	31	3, 6
12	ANS Student Sections Game Night (Umich, UIUC, MST)	September 12th	3	5, 6
13	Lightning Talks	September 13th	12	3, 4
14	Poker Night	September 15th	11	6
15	WIN Career Fair Shoutout	September 25th	30	4, 5, 6
16	Dr. David Pace Professional Visit	September 27th	55	1, 4, 5
17	Bear River Ranch Service Event	September 30th	3	2
18	Runcible Game Night	October 12th	7	6
19	Nuclear Science Week	October 15th-20th	>100	1, 3, 4, 5, 6, 7
19.1	Sunday Event	October 15th	7	6
19.2	Monday Tabling/Event	October 16th	>100	3, 4, 5
19.3	Tuesday Tabling/Events	October 17th	>100	3, 4, 5
19.4	Wednesday Tabling/Event	October 18th	>100	3, 4, 5, 7
19.5	Thursday Tabling/Event	October 19th	>100	3, 5, 7

19.6	Friday Tabling/Event	October 20th	>100	1, 3, 4, 7
20	Fermilab Trip	October 20th-22nd	20	4, 6
21	Pumpkin Carving Social	October 25th	15	6
22	Boo-palooza	October 31st	4	6
23	Panera Percentage Night	November 3rd	20	7
24	Rolla Cemetery Clean-Up	November 4th	10	2
25	NNL Professional Visit	November 8th	35	1, 3, 5
26	Hibachi Night	November 9th	15	6
27	Alpha Nu Sigma Induction	November 10th	3	3
28	ANS Winter Meeting 2023	November 12th-15th	3	4, 5, 6
29	Superlatives	November 29th	27	6
31	Giddy Goat Coffee House Study Session	December 7th	5	3
32	Panera Study Session	December 8th	5	3
33	CFD Workshops	FS2023	5	3, 4
34	Frida's Nights	FS2023	11	6
35	Mentor/Mentee Program	FS2023	4	3, 4
36	S&T ANS Discord	FS2023	51	6
37	ANS IM Volleyball Team	FS2023	10	6
38	S&T ANS Fundraiser	FS2023	3	7

Table 3-3: Overview of SS24 Section Activities

Spring 2024 Section Activities				
Index	Activity	Date	# of Participants	Category
1	Spring O'Rama	February 2nd	20	1,3
2	Ameren Power Professional Visit	February 7th	30	1,3,4
3	RCCL Nuclear Now Showing	February 8th	30	1,4
4	Rolla Scouts MBU	February 10th	30	1,2,3,4
5	Karaoke Night	March 1st	6	6
6	Argonne National Laboratory Visit	March 6th	32	1,4,5,6
7	Schuman Park Clean-Up	March 9th	10	2
8	St. Patrick's Celebration	March 15th	2	1,2,6
9	Conference Presenters Showcase	March 20th	35	1,3,4
10	Conference	April 3rd-7th	33	4,5,6
11	K-State Blue Glow Tours	April 8th	9	1,3,5
12	Eclipse Viewing	April 8th	5	6
13	Oak Ridge National Laboratory Visit	April 10th	35	1,4,5
14	MSTR Blue Glow Tours	April 19th	40	1,3
15	NERS Department BBQ	April 19th	20	6
16	Nuclear Science Merit Badging Day 2	April 20th	15	1,2,3,4
17	ANS Hike Day	April 20th	6	6
18	Alpha Nu Sigma Induction	April 26th	11	5
19	Float Trip	May 5th	24	6
20	Frida's Nights	SS2024	10	6
21	ANS Merch Sale Tabling	SS2024	5	7

3.2 Description of Major Activities for FS2023

This section contains descriptions of all the major events our section hosted and participated in for the Fall 2023 semester. All photos are included with their respective events. The order of this section corresponds to the order listed in Table 3-2.

3.2.1 O-Week: Fulton Hall Booth

On August 16th and 17th, our chapter hosted booths on campus focusing on introducing freshmen to the nuclear engineering department and members of our officer team. On the first day of tabling, we focused on demonstrating examples of radiation in everyday life. We set up a cloud chamber, radiation sources, and GM detectors to display the different types of radiation. On the second day, we taught people about the fuel cycle, fuel storage, and reprocessing. Over the two days, we spoke to about 50 students.

The significant outcome of this event was effective outreach. It marked the first chance of the year to connect with freshmen on campus and encourage their involvement in ANS. Notably, some of the freshmen we engaged with displayed remarkable enthusiasm and remained actively involved throughout the year. Looking ahead, we aim to enhance our outreach efforts by incorporating more interactive demonstrations at our booth, aiming to further captivate and engage attendees in future events.



Figure 3-1: Students Visit the ANS Booth

3.2.2 O-Week: Trivia Night

One of the events we held during O-Week to welcome the freshmen to ANS and S&T was a Nuclear Trivia Night. ANS members and freshmen were invited to come play a Jeopardy-style game with Nuclear-themed questions. We had 9 participants, 4 of them new faces. They teamed up with our officers and tested their knowledge on a range of topics!

Successful takeaways include good socialization and team building. Even though Trivia Night was one of the smallest of our O-week events, the officer's team got to spend some one-on-one time with a few of our newer members and welcome them more personally to the group.

3.2.3 O-Week: Smash Game Night

Our student section of ANS organized and held an “ANS Smash Bros tournament” in which incoming freshmen and returning students were invited to play Super Smash Brothers Ultimate with a few of the ANS officers at one of our residence halls. We had a total of 9 show up for the event, and we got to pit some of the new members against our officers and returning students for the game night. We played for 2 hours and got to visit with some of the residence hall staff. This helped us promote the community we are trying to build within our organization and allowed us to get to know our students in a more relaxed environment.



Figure 3-2: Smash Game Night

3.2.4 O-Week: Blue Glow Tours

On Friday of Opening Week, free tours of the Missouri S&T Reactor were given to freshmen and other students present on campus before the semester officially began. Students were able to sign up for tours at the tabling events held earlier this week. We gathered the students who signed up

at the booth on Friday and took them over to the reactor for their tour. Over 35 people ended up touring the reactor and were able to learn about the uses of research reactors. The reactor tours were led by our very own president who is a licensed operator.

Successful takeaways from this activity include outreach for the reactor facility. The reactor is a very big part of the Nuclear Engineering program here at S&T and getting people from all over campus to tour it is a great way for them to learn about the program and how to get involved. The tours are a great way to get some positive outreach for the facility, and this was shown in the largest class to sign up for operator training in the facility's history. The previous record was 23. After the first week's events, 72 people signed up for operator training and this included people in a wide variety of engineering fields including electrical, computer, aerospace, and materials.

3.2.5 O-Week: Volleyball Day

During orientation week, we held a sand volleyball game on one of the courts open to students by our residence halls. We invited our members out on one of the hotter days of the week, so we kept the game short and socialized in the shade to cool off. We had 9 participants, a few were returning students, but 3 of them were new to the group.

Successful takeaways from this event include good team bonding time for our officer team, who made up most of the group, and good socialization for our new members and returning students. Looking back this was probably our least successful event during O-Week, mostly due to the weather conditions of our state. It was super warm outside (close to 100 degrees) and that may have dissuaded people from coming out. Future events will consider the weather and plan more accordingly.

3.2.6 NERS Department Ice Cream Social

During the first week of school, the ANS officers had the opportunity to engage with some new students, both freshmen and transfers, in the NERS department through a nitrogen ice cream social. Beyond enjoying some delicious treats, this gathering served as a platform for ANS officers to showcase the club's objectives and initiatives to over 30 new students. We seized the moment to present about the club, its mission, and the exciting opportunities it offers to its members. Moreover, the officers took an active role in fostering academic camaraderie by assisting freshman students in forming study groups with experienced mentors in the introductory courses offered at S&T. This valuable interaction not only promoted a sense of community but also provided a strong support system for newcomers in navigating the challenges of their academic journey. It exemplified the ANS officers' dedication to both promoting their club and nurturing the growth and success of their fellow students and served as an opportunity to engage people who otherwise would not join ANS until their later years in the department.



Figure 3-3: Ice Cream Social Group Photos

3.2.7 MinerRama

MinerRama is a university-wide job-fair-style event for student organizations. We all set up a booth with our group's information and students sign up for any group they might be interested in. This year it was hosted on August 25th in the university gym. We had around 35 people come to visit our table, some who had been to our previous events and some new faces. We set up information and pictures of our chapter and the highlights of our plans for the year. We even brought out sources and detectors for a mini radiation demo! All our officers traded off shifts during the 4-hour event, and we all participated in the free ice cream the university was passing out during the event.

3.2.8 Fugitive Beach Trip

After the first week of school, our section took a trip out to Fugitive Beach, a local water park about 15 minutes out of town. 16 members, consisting mostly of new freshmen, spent about four hours swimming, cliff jumping, and interacting on the inflatable attractions there. Unfortunately, inclement weather cut the day short, but it did not dampen the fun we had there!

One notable success of this outing was the opportunity for new members to bond with the officers and other upperclassmen. This trip served as an excellent icebreaker and fostered connections among individuals who were still getting to know people on campus after just one week of school. The activities created lasting memories to kickstart some newfound friendships. In the future, it would be a good idea to bring our pop-up tent to provide a better gathering place for all the members, and perhaps some lawn chairs. Before this event, we did not know how much space was available for large groups besides the rentable pavilions.

3.2.9 Barbenheimer Social

For one of our first socials this semester, we did a costume contest themed around Barbenheimer. We had around 12 people attend, with 4 in costume! We watched some clips from a few Barbie movies and spent about an hour hanging out before we headed to one of our club's traditional Frida's Friday dinners. Two freshmen tied for the winning costume.

This event was a good opportunity to introduce the new freshmen to our social events, and a good way for members of the club to show their creativity. Our social events play a big role in creating a community within our organization, and we utilize these opportunities to connect with our members on a more personal level.



Figure 3-4: Barbenheimer Costume Contest

3.2.10 Schumann Park Clean-Up Day

As part of our goal to add more service events, we spent an afternoon cleaning up trash from one of our town's parks just a few minutes from campus. 9 of our members showed up at Schumann Park and walked through, removing trash and litter from the space. A few of our more dedicated members even fished some of the trash out of the pond! Since this is a park our students and our department use for other events, this was a good chance to assist the Parks and Recreation Department with keeping it trash-free. We've been doing this event for a few years, and it's always a great way to get involved with our town's community and give our members an opportunity for some service hours.

3.2.11 NERS Department Barbeque

On Sept. 9th, all members of the Nuclear Science Department were invited to Schumann Park for a department barbeque. 3 faculty members joined 28 of our students (both graduate and undergraduate) at the Lower Pavilion for a decent spread of food! We played lawn games like Cornhole and Washers and broke out the volleyballs and frisbees for a four-hour-long social. With good weather and good food, the barbeque was a success for everyone!

Takeaways from this event include socialization and department outreach. Getting to spend time with members outside of the formatted setting of a meeting and having the faculty members get to talk with our students away from the classroom helps create a more relaxed, friendly environment for everyone and builds good connections for the school year.



Figure 3-5: NERS Department Barbeque

3.2.12 ANS Student Sections Game Night (U-Mich, UIUC, MST)

On September 12th, 3 of our members joined a discord call with 8 members from the UIUC and U-Mich student sections for a virtual game night! This is one of several events we did this year between several of our fellow student sections, and it's a great way to meet and spend some time with them before we all attend the national conference together in April. These game nights occurred two more times in the fall and once in the spring.

3.2.13 Lightning Talks

At the second ANS general body meeting, we hosted a new type of event for our section, a research lightning talk. Faculty members and graduate students in the NERS department were challenged to present concise overviews of their research in just three minutes. Five professors and seven graduate students were in attendance, which provided a comprehensive overview of our research activities.

This innovative initiative proved to be immensely beneficial in multiple ways. Not only did it offer an insightful glimpse into the diverse array of research projects within the department, but it also provided an exceptional opportunity for freshmen to get involved early and familiarize themselves with the academic research, something they usually only get exposed to as upperclassmen. What made this event particularly enjoyable was its ability to convey complex research concepts in a comprehensible manner, ensuring that even people new to the nuclear field could grasp the essence of each project. Moreover, the event promoted meaningful networking and collaboration opportunities, fostering mentorship relationships and guiding students toward research interests aligned with their career goals. Many professors got inquiries for undergraduate research from this event and graduate students got to connect with people interested in collaborating on research as well. The lightning talk activity showcased ANS's commitment to fostering a supportive academic community and effective science communication, setting a positive tone for future collaborations and academic pursuits within our nuclear science community.

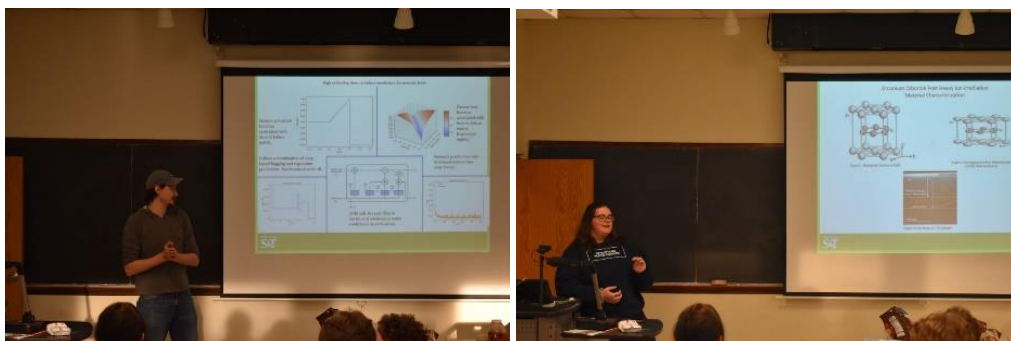


Figure 3-6: Graduate Students Presenting Research



Figure 3-7: Faculty Member Presenting Research

3.2.14 Poker Night

On September 15th, our ANS chapter hosted a poker night at one of the residential halls on campus. 11 of our members showed up to play some friendly casino-style games and hang out for a few hours together. This social activity allowed us to create bonding throughout our chapter and help freshmen get more involved in the ANS chapter.



Figure 3-8: Poker Night

3.2.15 WIN Career Fair Shoutout

On September 27th, S&T's student chapter of Women in Nuclear hosted a special career fair for nuclear engineering students only. This is an annual event of theirs, and they typically have much of the department attend. All of the companies present were looking to hire and talk to our department's students specifically, and this event is one of the best opportunities for our students to network and outreach with nuclear professionals. They had 10 companies there representing a variety of different careers in the nuclear field, such as health physics, research, and commercial power plant operations.

3.2.16 Dr. David Pace Professional Visit

On September 27th, we hosted a professional visit from Dr. David Pace from the DIII-D National Fusion Facility. He presented his work with the Fusion Pilot Plant and its research capabilities, as well as some of its design challenges and new facility developments. We invited ANS members and our university's Physics students to the presentation and ended up with an attendance of 55 people! Our students got to ask a few of their questions and were given a bit of information about the employment and research opportunities with General Atomics.

Successful takeaways from this event include professional outreach and education. Our members got to connect with an industry professional and learn more about fusion. The professional speaker series we do is one of the best ways for our students to network and learn more about their future opportunities in the nuclear field.

3.2.17 Bear River Ranch Service Event

On September 30th, 3 of our members went up to the Bear River Ranch and Cub Creek Science Camp here in Rolla to volunteer. We spent a few hours walking one of their trails, clearing branches and picking up trash, making sure the property's visitors could walk the trail and enjoy some time outdoors! We also got to help clean up one of their animal pens! We had a few helpers (emus and mini horses) who were a little curious about our work and tried to bring us our tools.

Successful takeaways include community outreach and service. We have done volunteer events with Bear River Ranch for a few years now and the experience and service hours our members get are always associated with some great memories. We get to see some cool animals and tour their facilities which includes their cabins for the summer camps, outdoor hiking trails, and meeting the exotic animals they keep in mid-Missouri!



Figure 3-9: ANS Members with Animals at Bear River Ranch

3.2.18 Runcible Game Night

On October 12th, we partnered with a local business, Runcible Games, for a board game night. Six of our members gathered for an evening of fun, engaging in various board games that spanned from strategy to cooperative play. The event was a resounding success, providing a space for member bonding beyond academic pursuits. Laughter and friendly competition filled the atmosphere, strengthening connections among the participants. This partnership with a local business not only provided a unique venue but also showcased our society's commitment to fostering community engagement and support for local establishments.



Figure 3-10: Runcible Game Night

3.2.19 Nuclear Science Week

Our Nuclear Science Week was packed full of events! We set up a table every day from 10 am-3 pm with fun demos, infographics, and merch sales! We also spent the week signing people up for Blue Glow tours at MSTR. Over 100 people signed up for the tours, and we had over 75 people visit our table in the first 3 days. We also had evening events all week including radio panel Q&A sessions, advocacy, a professional presentation from Dr. Kathryn Huff from the DOE, and a showing of the “Nuclear Now” Documentary. This was an extremely successful week of events and outreach for us, and we’d love to continue that momentum in next year’s Nuclear Science Week.

3.2.19.1 Sunday (Sidewalk Chalking)

The Sunday before NSW, 6 of our members came to campus to help promote our events for the week through sidewalk chalking! They decorated the high-traffic spots on campus with our event details and some fun nuclear-themed drawings. They helped us create some merchandise to tell throughout the week as well, like the buttons and infographics we handed out at our table.

3.2.19.2 Monday Tabling (Cloud Chamber & Source Demos)

For our first event of Nuclear Science Week, we set up a table on campus. Today's event's purpose was to explain, in a basic way, how different types of radiation work. We had several sources and detectors set up, including a smoke detector to show how even everyday objects are tied to nuclear science. We were also giving out free buttons to anyone passing by and provided a sheet for calculating your yearly dose. Finally, we were offering reactor tours at the end of the week, and anyone interested could sign up at our booth throughout the week. We had approximately 100

students come to our table throughout the day, signing up for tours and learning more about radiation.

3.2.19.3 Monday Event (ASUM Advocacy Event)

On Monday of Nuclear Science Week, our afternoon event was an Advocate for Nuclear Discussion with our chapter of ASUM. Our President gave a presentation on some nuclear facts, informing the attendees on the current state of the Nuclear Energy sector both nationally and internationally. Then, the ASUM President gave a presentation on how to contact our legislators and the most effective points to hit in a message to them. We had about 20 people in attendance, and we got some great resources for learning about advocating for Nuclear Energy.

Successful takeaways from this event were outreach and education. We got to work with another Student Organization on campus, which is always a great experience, and we got to learn a lot about advocacy, which is an important part in being a part of the nuclear sector that does not get talked about often.

3.2.19.4 Tuesday Tabling (Fuel Cycle Informational)

Our tabling on Tuesday showcased the various aspects of the nuclear fuel cycle. We set up infographics and representations of the different stages of fuel processing and disposal. General members of the campus could stop by and ask questions about how the industry creates and handles its fuel. We were also handing out some of our merch and signing people up for the Blue Glow tours being offered on Friday. The main goal of this day was to dispel myths about how spent fuel and nuclear waste are handled and the actual environmental effects of the nuclear fuel cycle.

3.2.19.5 Tuesday Event 1 (Bake Sale Prep)

On Tuesday evening, 10 of our members split up to tackle the task of baking nuclear-themed goodies for our bake sale tabling on Wednesday. We made yellowcake cupcakes, TRISO fuel Oreo balls, chocolate-dipped fuel pretzel rods, and brownies decorated with the radiation symbol.



Figure 3-11: ANS Members Preparing for Bake Sale

3.2.19.6 Tuesday Event 2 (KMNR Panel)

On Tuesday of Nuclear Science Week, we hosted a nuclear Q&A session live on air with our university public radio station, KMNR 87.9 FM. Two graduate students, two professors, and two DJ hosts composed the panel. We were on air for an hour answering a variety of questions that were submitted in advance and questions that were sent in live during the show. We talked about a wide variety of subjects from fields of nuclear science to the dose people receive in one year, to how radioactivity impacts biology, how it can be used in medicine, and the impacts of nuclear accidents on our industry. It is difficult to estimate how many people participated in this activity overall, but we had a peak listener count of 62 on the online streaming platform used by the station.

The event was very successful for our section. The DJs who hosted expressed that they had a lot of fun learning about our field and would like to host it again for their educational programming next year, possibly for a longer airtime. Between the questions we gathered from people in advance and the ones we got during the show, we had a very smooth flow throughout the hour between topics of interest and balanced conversation between the professors and students in their areas of expertise. It would be nice to expand the panel with an additional two people to cover a few more nuclear science areas more in-depth. Overall, it was a very fun and unique opportunity and we got a lot of positive feedback!



Figure 3-12: KMNR Sound Booth

3.2.19.7 Wednesday Tabling (Bake Sale)

For Wednesday's tabling event, we held a bake sale! We offered "yellowcake" cupcakes, TRISO fuel Oreo balls, chocolate-dipped fuel pretzel rods, and radiation symbol brownies. In addition to this, we also sold various nuclear-themed sticker designs and some of our other merch.



Figure 3-13: Bake Sale Table

3.2.19.8 Wednesday Event (Dr. Kathryn Huff Professional Visit)

On the Wednesday of Nuclear Science Week, we invited the United States' top official for nuclear energy, Dr. Kathryn Huff, to speak to our campus and the Rolla community. As the assistant secretary for the U.S. Department of Energy's Office of Nuclear Energy, she provided us with an exceptional opportunity to hear about the future of nuclear from one of the foremost leaders of our programs. She spoke about the four key components of the DOE's plan for nuclear energy in the clean energy transition and the variety of funding opportunities and projects working in those areas. We learned about the challenges of keeping current nuclear power plants running, building new nuclear capacity, securing and sustaining our fuel cycle, and expanding international cooperation.

This event was successful with over 50 campus members and the general community attending in person, and about 20 people on Zoom. We had a healthy ten-minute discussion and Q&A session after her presentation. In the future, if we are planning another seminar for NSW, it would be amazing to be able to host the speaker in person to garner even more attendance.



Figure 3-14: Dr. Kathryn Huff Presentation

3.2.19.9 Thursday Tabling (Merch Sale)

The Thursday tabling event was a merch and bake sale. We sold various nuclear-themed stickers in addition to continuing to sell food remaining from the Wednesday bake sale. We had around 50 people stop by at our table for this event which made for a great fundraising opportunity for our club. We also discovered the success of the sticker designs and would use them in future events.



Figure 3-15: Merch Sales for Nuclear Science Week

3.2.19.10 Thursday Event (Nuclear Now Documentary Showing)

One of our last events for Nuclear Science Week was a showing of the 2022 Documentary, “Nuclear Now,” directed by Oliver Stone. The movie depicts the world history of Nuclear Energy, and how the public’s perception of it has changed throughout the years. We had 15 people show up to watch, and we gave out some snacks and discussed our thoughts about the movie afterwards.

Successful takeaways from this event are outreach and socialization. The documentary has a lot of great points to be made about the future of Nuclear Energy in the world, and our members got to know a little bit more about each other in the discussion afterwards. The next time we do an event like this, we should consider viewing other media that depicts nuclear events or technology.

3.2.19.11 Friday Tabling (Merch Sale)

The final day of tabling for Nuclear Science Week was on Friday. We continued to sell nuclear-themed stickers and limit t-shirts. One of the main purposes of today’s tabling was to transport groups to and from the campus nuclear reactor for the blue glow tours.



Figure 3-16: Nuclear Science Week Merch Sales

3.2.19.12 Friday Event (MSTR Blue Glow Tours)

On Friday of Nuclear Science Week, free tours of the Missouri S&T Reactor (MSTR) were given to anyone interested. MSTR is a 200kW MTR-fueled reactor with a 30,000-gallon pool providing a unique opportunity to see Cherenkov radiation and discuss other reactor phenomena. At the Monday-Thursday booths, students were able to sign up for a tour slot for Friday. In addition to signing people up at the tables, we also opened an opportunity for students in our university's freshman engineering class to get their required participation credit by attending our tours. We had seven time slots available for up to 20 people to attend each tour given the smaller size of our facility. We gathered the students who signed up over the week at our booth and took them over to the reactor for their tour to streamline the security sign-in procedure. Over 115 people ended up touring the reactor that day and were able to learn about the nuclear industry and the research done by people in our program. The reactor tours were led by our president, a reactor operator, and our vice president, a trainee in the operator's program.

Successful takeaways from this activity include outreach for the reactor facility. The reactor is a very big part of the Nuclear Engineering program here at S&T and getting people from all over campus to tour it is a great way for them to learn about the program and what we get hands-on experience with. The tours are a great way to get some positive outreach for the facility and are part of the reason we have over 50 people interested in the trainee program from a wide variety of engineering fields and year levels.



Figure 3-17: Baby's First Reactor Tour

3.2.20 Fermilab Trip

On October 20th-22nd, 20 of our members drove up to Urbana-Champaign, Illinois to visit our fellow ANS Chapter and friends at UIUC. They graciously hosted us for the night after a short game night with their members. On the 21st, the UIUC and S&T students carpoled to the Fermilab facility in Chicago. We met up with the UMich ANS chapter, and all 3 groups got to take a tour of Fermilab. The tour was several hours, and then we enjoyed some Chicago-style pizza at a dinner with over 30 people in attendance from the three chapters. We drove back to UIUC and stayed with them for another night before returning to S&T.

This was one of the coolest opportunities for our chapter to participate in this year. Not only did it fall on the tail end of Nuclear Science Week, but we spent an entire weekend with our friends from UIUC and UMich. One of our biggest goals for the year was to add more events that involved other ANS student chapters or other student organizations, and we are glad we got to do an event of this scale with them.



Figure 3-18: ANS Chapters at Fermilab Tour

3.2.21 Pumpkin Carving Social

At the October 25th general body meeting, we held a pumpkin carving social to celebrate Halloween. We provided pumpkins and carving tools to members and then held a competition at the end. The winning pumpkin would be submitted to a Student Council pumpkin design competition for all clubs on campus. After the event, the pumpkins were set up outside the nuclear engineering building as decorations for the rest of the week.

3.2.22 Boo-Palooza

Every year on Halloween, the town of Rolla hosts a Halloween parade-style trick-or-treat event where local businesses and organizations (including S&T clubs) will set up a booth and hand out candy to local children. They shut down the main street in downtown Rolla and hundreds of residents came to participate. Our members get dressed up and pass out candy for a four-hour-long service event! We get at least 200 people coming by our table each year. It was a lot of fun and a good engagement with the general Rolla community.



Figure 3-19: ANS Boo-Palooza Booth

3.2.23 Panera Percentage Night

On Friday, November 3rd, we held a percentage night fundraiser with Panera. For this percentage night, 25% of the sales Panera made from 4 pm-8 pm that night went to ANS. We had around 20 people attend this event which brought in \$531.49 in sales to Panera. Panera then donated \$132.87 back to us via check. Overall, this was a successful fundraiser in a form that we had not done before. It was quite simple to set up, our members got to have a good time hanging out and eating at Panera, and we made money. We will be looking into doing this again with Panera in the future and expanding to other companies willing to hold percentage nights with us.

3.2.24 Rolla Cemetery Clean-Up

November 4th, 10 of our members volunteered at our local Rolla Cemetery to clean gravestones! We spent a few hours cleaning 2 family plots, learning the history of the family and the cemetery, and making the gravestones shine.

Successful takeaways include community service and outreach. We have done this event a few times and it's always a great experience. The history of the cemetery is always super interesting and it's a great way to give back to the Rolla Community a little. Our members get to meet some new people and get a few volunteer hours.



Figure 3-20: Cemetery Clean-Up

3.2.25 Naval Nuclear Laboratory Professional Visit

On November 8th, we invited one of our alumni from the Naval Nuclear Laboratory, Nicholas Takacs, the Engineering Manager at the Naval Reactors Facility and a Lead talent ambassador to come for a professional visit. He joined us virtually to give a presentation on his work with the NNL, the status of their projects and facilities, and employment opportunities with the lab. We had 35 members attend the talk.

As part of our professional speaker series, this event is a great way for our members to network and outreach with companies and industry professionals. They can ask questions and make connections before they apply for jobs and internships, and they get a little bit of facetime with people who are not on the recruiting side of these companies.

3.2.26 Hibachi Night

On the 9th of November, 14 of our members went out for a hibachi night at one of our local restaurants! We got the full hibachi experience, and this event gave our members a chance to relax towards the end of the semester. It was a very successful event with a decent turnout. We'd like to repeat an event like this, and we enjoy getting to see our members outside of our more formal and professional events.



Figure 3-21: ANS Hibachi Night

3.2.27 Alpha Nu Sigma Induction

Our section of the Alpha Nu Sigma honors society inducted their new members on November 10th. 8 new members were inducted for their outstanding academic performance, and then all the ANS members celebrated with one of our Frida's Nights dinners.

3.2.28 ANS Winter Meeting 2023

Our student chapter brought three students to the 2023 ANS Winter Meeting. Of those attendees, we had one member conduct two presentations in the Online Monitoring, Diagnostics, and Prognostic technical session.

Our members were able to reconnect with alumni and friends and different schools and focused on expanding networking opportunities with national ANS leaders and the SSC. We were able to enjoy exposure to many professionals and other people who don't usually attend student conferences. Overall, a lot of fun was had at the different technical events and activities.

At the SSC meeting, our president was given 10 minutes to discuss our section here at S&T which helped get our name out to others. It opened a lot of dialogue with sections in attendance such as Purdue, the University of Tennessee, and the University of Florida. Overall, it was an amazing opportunity to share thoughts and ideas for the overall betterment of student chapters nationwide.



Figure 3-22: ANS at the 2023 Winter Meeting

3.2.29 Superlatives

At the last meeting of the semester, members were awarded superlatives based on their accomplishments or personality traits. We give out awards for our most involved freshmen, best attendance, and always add a few less serious ones that bring back some inside jokes from the semester. This is a very lighthearted event that allows the officer team to thank our members for their involvement and recognize all the people who make our events as successful as they are.

3.2.30 Giddy Goat Coffee House Study Session

On the Thursday before finals week, ANS hosted a study session at one of our local coffee houses. We had 7 members get in some good preparation hours before finals. These events are always a good way to help students get some advice for exam season and socialize with some of the older members. Since we typically do not host any events during the end of the semester, these events are also a good way for our members to see each other before the break.



Figure 3-23: Giddy Goat Study Session

3.2.31 Panera Study Session

On the Friday before Finals Week, our chapter hosted a study session at the Panera Bread in Rolla. 8 of our members came to prepare for their finals and catch up before the winter holiday break. Our members got to eat lunch, socialize, and work together to study for some of their shared exams.

This was an event our chapter is interested in continuing to do. Beyond the collaboration for studying, it was a good way for our members to take a break during the exam season and get to see each other before the end of the semester. It's also a great way to provide good business for some of the places in Rolla.



Figure 3-24: Panera Study Session

3.2.32 CFD Workshops

We helped organize a CFD tutorial with one of our faculty members, Dr. Schlegel. The workshop was run on Monday's 5-7 pm throughout the fall semester and many of our members attended. It was a workshop relevant to both our classes and future work in the nuclear field. Students learned how to simulate fluid flow and heat transfer, develop discretized equations for complex or implicitly defined problems, and how to fully utilize CFD software.

3.2.33 Frida's Nights

On each Friday after our General Body Meetings, our members meet up for dinner at Frida's, one of our local Mexican Restaurants. These nights are one of the biggest social events that we host, with an average of 10-12 members showing up each time, but we had one get up to 22 people. We love getting to see our members in a more relaxed setting, and it's a great way to get to know some of our newer students.

These Frida's Fridays have become a tradition for our chapter, and it's one we'll continue to host next year. We'd love to see more turnout, and we love to use these nights to get our members talking and seeing each other outside of our meetings and more professional events.

3.2.34 Mentor/Mentee Program

For the fall semester, younger members and older members were grouped into a mentor and mentee program. There were six groups of three formed to help in some core STEM classes. Each group was assigned a mentor who helped the mentees with studying tips, ways to make a good schedule, and general class assistance. Many of the groups helped study for classes and exams. This helps the younger members get more familiar with other people in the department and be able to be active in the department while not taking department classes.

3.2.35 S&T ANS Discord

The ANS Discord has become our main source of communication between the officer team and members (although regular emails were also sent out). This server contains links to workshop resources, photos from trips, a study group finder, a general help chat, a hotline between S&T ANS and S&T Women In Nuclear (WIN), alumni contact information, and is where we create group chats for events such as the student conference. Overall, it has become an integral part of our organization's communication and saw 30 new people join the server.

3.2.36 ANS IM Volleyball Team

For the fall semester, our chapter participated in the IM volleyball leagues. We had 9 members join us in playing where we faced off against other organizations! This was a great opportunity for team building within our chapter and getting to know new members. It was also a great way to

meet other organizations on campus. Overall, it was a lot of fun and we learned a lot about how to play volleyball.



Figure 3-25: ANS Volleyball Team

3.2.37 ANS S&T Crowdfunding Fundraiser

Over the last few months of the Fall semester, our chapter worked in conjunction with our university's Alumni House to create an online crowdfunding platform to fundraise for our chapter. Our travel costs for the Student Conference were going to be a big part of our spending for the Spring semester, and we wanted to keep costs as low as possible for our members. We raised over \$2,000 through the fundraiser, as well as a couple more thousand from personally reaching out to alumni.

While this did help us pay for travel to Penn State, we are not sure it was successful enough to do in the future, as the execution took a lot of extra effort for the officer's team and was met with multiple roadblocks through campus administration.

3.3 Description of Major Activities for SP2024

This section contains a description of each event our chapter participated in or hosted over the Spring 2024 semester. All photos are included with their respective activities, and the order of this section corresponds with Table 3.3.

3.3.1 Spring O’Rama

On February 2nd, 6 of our officers ran a table for 3 hours as part of a job-fair-style campus event for the student organizations. Students walk between tables, signing up for clubs and learning more about the events and groups on campus. S&T hosts 2 of these events a year, although attendance for the spring semester is usually a little lower. We added a few new members to our group and got to talk to around 20 people.

Successful takeaways include outreach because this event is a good chance to promote our events and activities and give our officers practice with recruiting new members. Next year, we hope to get a few more people to sign up to join our chapter, despite the lower attendance for this event.

3.3.2 Ameren Power Professional Visit

On February 7th before our general body meeting, Hayden Miller, one of our Alumni, came to speak as part of our professional speaker series on behalf of Ameren Power. We had 35 people attend the presentation on Hayden’s work with the company, internship, and job opportunities, and what it’s like to work with Ameren.

Each part of our professional speaker series is a great way for our members to network, and for our chapter to outreach to companies, and this one, since it was an alumnus, was a good way to socialize with one of our former members.



Figure 3-26: February 7th General Body Meeting

3.3.3 RCCL Nuclear Now Showing

On February 8th, 3 of our members went to a showing of the Nuclear Now Documentary (2022) at the Rolla Courthouse. This event was hosted in conjunction with the Rolla Citizen's Climate Lobby (RCCL) group, which was holding the event in the hopes of educating the Rolla public on Nuclear Energy and giving them the chance to ask questions to people who work with and are studying Nuclear Engineering. Our President, Narrie Loftus, did a Q&A session after the showing alongside an S&T alumnus and retired naval nuclear officer, Kevin Edwards. They had an excellent discussion with 30 of our locals, who had great questions and were very engaged.

This event was extremely successful as an outreach, advocacy, and networking event. There are not a lot of opportunities for our students to talk with other groups who support Nuclear or to answer the questions of the general public. The RCCL people were very welcoming, and we were grateful for the opportunity to participate in this event.



Figure 3-27: RCCL Nuclear Now Showing

3.3.4 Nuclear Science Merit Badging Day 1

Annually, we extend invitations to local scouts, formerly known as Boy Scouts, to our campus for an enriching experience aimed at earning their Nuclear Science Merit Badge. This badge encompasses a broad spectrum of nuclear science topics, requiring participants to grasp fundamental concepts such as radiation's everyday applications, the role of nuclear engineers, and how nuclear energy generates power.

Preparing for this event is a substantial undertaking. As officers, we developed comprehensive presentations on nuclear concepts, designed engaging activities, and facilitated an officer's certification to serve as an instructor capable of signing off on the badge. The challenge lies in

accommodating scouts ranging from 4th to 12th grade, necessitating a careful progression from basic to advanced concepts to ensure clarity for all participants.

On the event day, approximately 30 scouts, accompanied by their parents, arrived around 9:30 AM. The sessions kicked off with presentations (see Picture 1 for our general schedule), and a highlight for the scouts was a tour of the campus research reactor. Following the tour, we opened the floor for questions, with four student reactor operators and the reactor manager providing insightful answers for about an hour. This hands-on experience allowed the scouts to connect theoretical knowledge with real-world applications.

A significant takeaway from the event is its role as an outreach opportunity. Educating the next generation serves as a powerful avenue for dispelling common misconceptions. Our hope is that these scouts not only remember the information presented but also become ambassadors, sharing their knowledge with friends and family.



Figure 3-28: Balloon Criticality Activity for Merit Badges



Figure 3-29: Missouri S&T Reactor Tour for Merit Badging

3.3.5 Karaoke Night

On March 1st, 6 of our members went to a karaoke night at Tater Patch, one of our local restaurants. They spent the night playing cards at the table, socializing, and listening to a few locals who were brave enough to sing for the karaoke night!

Our chapter has put a lot of work into creating a relaxed, friendly environment for our members, and events like this have helped with that. They give us a chance to spend time together outside of meetings and classes.

3.3.6 Argonne National Laboratory Professional Visit

On March 6th before our general body meeting, Dr. Matthew Jasica from Argonne National Laboratory presented his research and job opportunities with ANL. We had about 30 people in attendance, and our students got to ask a few questions about the applications of his research.

As part of our professional speaker series, this event was an opportunity for networking, outreach, and education for our members.

3.3.7 Schuman Park Clean-Up

On March 9th at 1pm, ANS partnered with another organization on campus, Delta Tau Delta, to help clean up trash at Schuman Park. There were 10 people in attendance. This was a good opportunity to give back to the community and make a frequently visited area look a little nicer! It was also good for the environment as there was a significant amount of trash caught up in the central lake and drainage areas running from it.



Figure 3-30: ANS Schuman Park Clean-Up

3.3.8 2024 St. Patrick's Competition

Our St. Pat's celebration is one of Missouri's most beloved and longest-standing traditions, dating back as far as 1908. For the 116th annual "best ever" this year, we nominated two students to represent ANS in the Queen's and Knights competition, Narrie Loftus as a queen candidate and Ryan Sei as a knight candidate. Throughout the spring semester, they attended weekly social events, an interview process, and completed individual service hours while educating the 70+ participants in the program about ANS. The knight candidate completed enough work to be inducted into a special group called the Order of the Snake, and the queen candidate placed 4th overall being honored at the coronation ceremony as the Duchess of Divinity and Elegance.

With this being the first year ANS has participated in St. Pat's, it was a great success! Our two representatives were given many opportunities to advocate for nuclear and represent the organization in a space normally dominated by other large organizations on campus. Throughout the semester and during St. Pat's festivities, more than 1000 people were exposed to ANS by the involvement of our two candidates, including during a city-wide parade. For future years, we can expand our member's involvement in the celebration by competing in the games and even trying to win awards as an organization overall.



Figure 3-31: ANS St. Pat's Queen and Knight Representatives

3.3.9 Conference Presenters Showcase

On March 20th, as part of our general body meeting, there was a showcase for our members who were presenting at the 2024 ANS Student Conference. We had two different groups practice their presentation, and they got feedback from our members on timing, coherence, and delivery. We had about 35 people in attendance.

This is an event we are interested in repeating with our presenters each year. We hope to get all our senior design groups to present next year, as well as any of our other members who are participating in research projects. It's a great way for them to practice and receive some advice from our other members who have presented at the student conference before.

3.3.10 2024 ANS Student Conference

Our chapter went to the 2024 Student Conference this year with 33 attendees. 4 of our students presented their research during the various sessions, and our Chapter President, Narrie Loftus, won the SSC award for outstanding service and leadership to her chapter. Our members got to attend a wide variety of tours and sessions, as well as each dinner and social. We also traveled to conference with the 8 attendees from the ANS K-State chapter, which was a unique opportunity.

We consider the Student Conference to be one of our biggest events of the year, so we heavily promote it to our members and the nuclear engineering department. For the past 3 years, we've been able to bring over 30 people with us to the conference. Successful takeaways this year include outreach, socialization, and networking, and we want to keep our attendance numbers up for the next one.

3.3.10.1 Wednesday, April 3rd

At a bright and early 5 AM, our conference attendees boarded a charter bus for the 15-hour drive up to Pennsylvania. We got to travel with the 8 attendees from the K-State chapter, and the one vehicle allowed for more time for our members to interact with each other rather than the multiple vehicles we've taken in previous years.



Figure 3-32: S&T and K-State ANS Student Conference Attendees

3.3.10.2 Thursday, April 4th

Thursdays' main activity was having people attend the various tours and workshops offered by our hosts. Our members got to tour the Three Mile Island facility, the Axemann Brewery, the Waltz

Mill complex, and the various labs and facilities on the Penn State Campus. Then, our members attended the commencement dinner at the Bryce Jordan Center, before splitting off into the Bar Crawl and Ice Cream Socials for the night.



Figure 3-33: Dinner at the Bryce Jordan Center

3.3.10.3 Friday, April 5th

Friday was the first day of the technical sessions and career fair. Our members attended a wide variety of presentations, as well as getting to the Penn State Breazeale Reactor open house tours. At the career fair, our members made many great connections with industry professionals and some job and internship opportunities for the summer. Our members Ian Clark, Cameron Ashley, and Eric Franklin presented in two of the Radiation Protection and Medical Physics sessions. Then, we went to the dinner and mixer at the Axemann Brewery.



Figure 3-34: S&T Member Presenting at Student Conference [1]



Figure 3-35: Dinner at Axemann Brewery

3.3.10.4 Saturday, April 6th

The technical sessions continued Saturday, with our graduate student Eli Boland presenting his research in the Reactor Physics session. Once the sessions were done, our members attended the closing banquet and award presentation. Our Chapter President, Narrie Loftus, won the SSC award. We headed home early on Sunday and wrapped up the 2024 ANS Student Conference.



Figure 3-36: S&T Member Presenting at Student Conference [2]

3.3.11 Conference Feedback and Takeaways

We sent a survey to our members who attended the conference asking for feedback on the overall experience and the officers' performance. Our members gave an average rating of 8.9/10 and had lots of positive reviews for the organization, planning, and execution from the officers.

This year had a lot of unique changes to our conference experience. The mode of travel, while it had its disadvantages, gave our members a chance to spend some time with each other before staying in hotel rooms for 5 nights together. Being able to travel with the K-State chapter was also a great opportunity, and we had so much fun getting to know them. We learned a lot as officers that will help us plan for next year, and we have a lot of memories to look back on as a group.

3.3.12 Post-Conference Blue Glow Tour

On April 8th, the K-State chapter stuck around for an extra day to take a Blue Glow tour of our campus' research reactor. Their members got to hit the milestone of touring 4 reactors in the same week after all of the Student Conference activities, and we had the opportunity to host them for a few extra hours. Thanks to K-State for joining us, we had a blast!

3.3.13 Eclipse Viewing

The 2024 Solar eclipse fell on April 8th, and 5 of our members drove a few hours outside of Rolla to see totality after giving K-State a hint for where to go. We bought snacks and set up a picnic-style viewing at a park. The location we traveled to had totality for four minutes, and we got some cool photos.

Successful takeaways include socialization. Some of the people who went had not had the chance to see the 2017 eclipse, and we had a fun little outing for an event that would only happen a few times in our lives.

3.3.14 Oak Ridge National Laboratory Professional Visit

On April 10th before our general body meeting, S&T alumni Dr. Monica Gehrig from Oak Ridge National Laboratory presented her research with fusion coolant materials as a part of the Blanket and Fuel Cycle Group. She also talked about internship, co-op, and job opportunities for our students at Oak Ridge. We had about 35 people in attendance, and they got to ask lots of questions about her research in the fusion field.

Successful takeaways include networking, outreach, and education. Students got to make a connection with one of our alumni and learn more about the places they could apply their education once they graduate.



Figure 3-37: ORNL Presentation at General Body Meeting

3.3.15 MSTR Blue Glow Tours

On April 19th, ANS hosted Blue Glow Tours at our reactor for people on campus and members of the Rolla public. The tours lasted from noon to 7pm. We had about 20 students from campus sign up, and 20 people from the Rolla Citizen's Climate Lobby (RCCL) group joined us for our last couple of tours.

Successful takeaways from this included outreach and education. Our tour groups got to learn more about the nuclear reactor, and our department got to outreach with the Rolla community.

3.3.16 NERS Department Barbeque

On April 19th, 3 faculty and 17 students met at Schuman Park for a cookout. The weather was pleasant and with just enough wind for a cool breeze. The main course was hotdogs and burgers with a side of chips. Some people played cards, others cornhole brought by the department. Others just sat back, enjoyed the sun, and talked the afternoon away. The department brought out some of the liquid nitrogen used for detectors, and together the chapter and department made liquid nitrogen ice cream for everyone to enjoy. Events like this show how well we interact with our department. It also gives students the opportunity to be in a more relaxed environment with their professors.

3.3.17 Nuclear Science Merit Badging Day 2

On April 20th, ANS helped badge 9 more Boy Scouts. We gave different presentations covering everything from the basics of radiation to future careers. We did fun activities with the scouts such

as an M&M half-life and a make-your-own isotope! The scouts also participated in a blue glow tour over at the campus reactor.



Figure 3-38: Nuclear Science Merit Badging Event

3.3.18 ANS Hike Day

On April 20th, 6 of our members went to the Spring Creek Gap for a 4-mile hike. The Missouri weather was kind to us, and we got to see some great views in the woods surrounding Rolla. Events like this are a great way for our members to spend some time with each other in a more relaxed setting, and to have an opportunity to enjoy the nicer weather.



Figure 3-39: Members on Hiking Trip

3.3.19 Alpha Nu Sigma Induction

S&T's chapter of the Alpha Nu Sigma honors society inducted 3 new members on April 26th and held elections for officers for the next year. The members were recognized for their excellence in academics, and then the event ended with one of our Fridas' Nights dinners.



Figure 3-40: Alpha Nu Sigma Induction

3.3.20 ANS Float Trip

On May 5th, 24 of our members are going on a float trip to celebrate the graduating seniors and enjoy one last big event of the semester. We will be traveling to the Meramec River for the day. This is another event we do each year, and it always serves as a great way to not only take a break during the exam season, but to say goodbye to each other before the summer break. We can say farewell to the seniors and give them a way to celebrate, and we always love adding events that allow our members to spend more time together in a relaxed and fun environment.

3.3.21 ANS Merch Sale Tabling

Throughout the semester we held at least 8 tabling fundraisers where we sold stickers and t-shirts to continue raising funds towards our travel and operation costs. This was a great way for our club to fundraise and connect with the general campus. We also used tabling to help advertise for blue glow tours when held them.



Figure 3-41: Merch Sale Tabling Throughout the Semester

3.3.22 Fridas Nights

On each Friday after our General Body Meetings, our members meet up for dinner at Frida's, one of our local Mexican Restaurants. These nights are one of the biggest social events that we host, with an average of 10-12 members showing up each time, but we had one get up to 22 people. We love getting to see our members in a more relaxed setting, and it's a great way to get to know some of our newer students. This semester highlighted how these events allow members to bond and socialize outside of classes.

These Frida's Fridays have become a tradition for our chapter, and it's one we'll continue to host next year. We'd love to see more turn out, and we love to use these nights to get our members talking and seeing each other outside of our meetings and more professional events.



Figure 3-42: Fridas' Nights Throughout the Semester

4. Conclusion and Future Work

The academic year of 2023-2024 has been characterized by notable achievements for our Missouri S&T chapter. We commenced the year with a successful recruitment drive, attracting students interested in the American Nuclear Society, and maintained their engagement through a variety of professional development opportunities, social gatherings, outreach initiatives, and public service events. As evidenced by a significant increase in membership — with 31 new members joining our ranks, representing a remarkable 60% growth compared to the previous year — our efforts have yielded tangible results.

Our general body meetings saw a notable increase in attendance, with an average of 34 members actively participating, marking a substantial 50% surge from the preceding academic year. Throughout the year, we organized a total of 65 distinct events spanning Glasstone's seven main event categories, demonstrating our commitment to offering diverse and enriching experiences to our members.

Through prudent financial management, combined with a successful crowdfunding campaign and merchandise sales, we experienced exponential growth in our chapter's financial reserves, multiplying our initial account balance by approximately 5.7 times. Consequently, we are well-positioned to enter the upcoming year with a robust budget exceeding \$14,000, empowering our officer team with ample resources to execute ambitious plans, including facilitating the participation of Missouri S&T students in the 2025 University of New Mexico hosted student conference.

Considering the data from the last five years, as seen in Table 4-1, our chapter seems to have finally rebounded from the participation downturn induced by the COVID-19 pandemic in 2020-2021. We are seeing a revitalized era of engagement and activity within our ranks.

Table 4-1: Yearly Growth Comparison

Category	2019-2020 (Pre-COVID)	2020-2021 (COVID)	2021-2022	2022-2023	2023-2024 (current)
Undergrad Members	34	10	45	43	58
Graduate Members	1	2	10	9	7
Final Funds (\$)	5249.84	4444.01	5023.09	5150.06	14512.00
Number of Activities	10	12	36	65	65
Conference Attendees	Canceled	15	32	32	33
Conference Presenters	Canceled	8	8	3	3
Conference Awards	Canceled	0	4	1	1

As we move through the transition of our section's officers, the outgoing members have identified a few key locations to turn the focus to for the following year.

A long-standing goal of ours has been to continue increasing our member involvement. We have many more members than officer positions available and there were times over the year people expressed a desire to get more involved than just attending events. To make use of this desire to participate, the next officer group will likely open two standing committees. One for outreach, which will divide work into social events and educational programming, and another for fundraising, which will include our campus sales and a potential sponsorship initiative. A great idea we have is to appoint a freshman to the fundraising committee to help facilitate a sales project with other young members by utilizing 3D printing equipment on campus. With the current strength of our executive team, we think this is an appropriate and achievable next step in expanding leadership skills within our section.

Another area of improvement will be to continue the growth of joint events between organizations across the Missouri S&T campus. We invited many campus groups to our events and participated in other events in kind. The biggest success in this area this year was a nuclear education and advocacy event co-hosted with our student lobbying organization, ASUM. There were also plans in place to utilize their resources to arrange a trip to our state capital for our nuclear students to meet one-on-one with legislators and table in their lobby. This event fell through for a variety of reasons, but mostly because the proposed date this year happened to be during student conference. With a framework for this activity and the connections that were made this year, a big emphasis will be placed on following through with such a potentially impactful event.

With these two main areas of development identified and leadership transitions completed thoroughly, next year is sure to bring our members together to continue working towards the national goal of ANS to empower our community. Our next leadership team will surely improve on these successes and more over the next year.