
Chapter of Excellence Nomination

Rensselaer Polytechnic Institute
Material Advantage Chapter

2015- 2016 Academic Year



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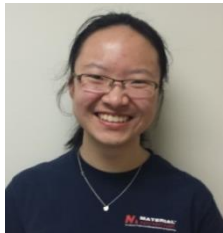
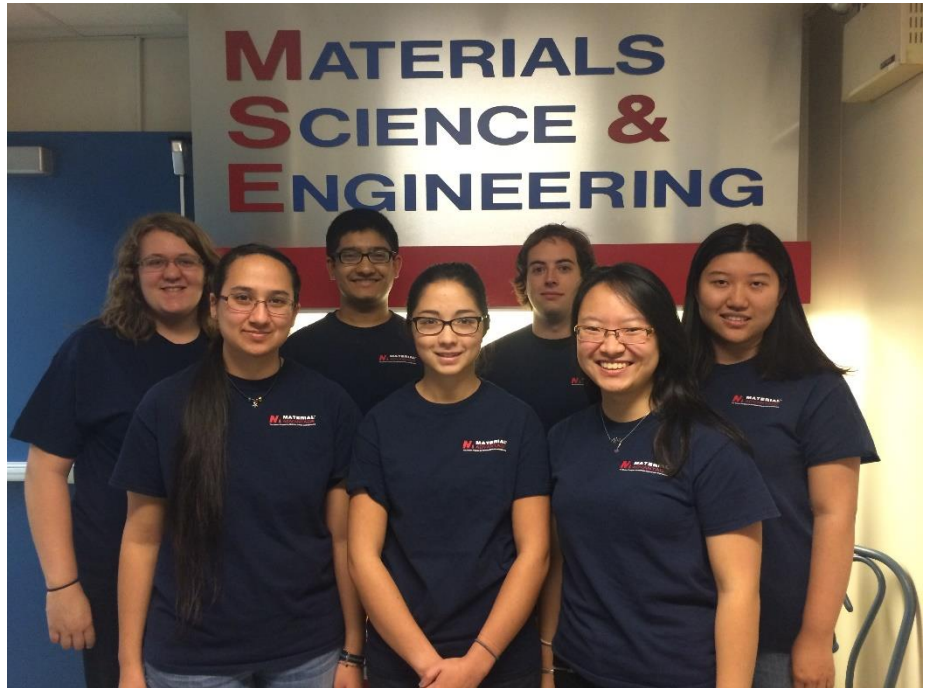
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1. Chapter Overview

2015-2016 CHAPTER OFFICERS



Dan Lewis
(Faculty Advisor)



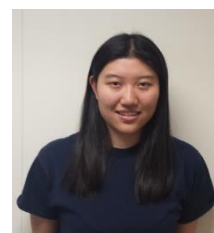
Haoxue Yan
(Chair)



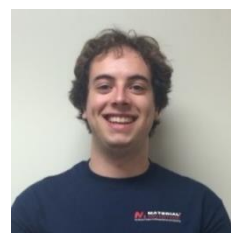
Tanzil Islam
(Vice Chair)



Mallory Gordon
(Secretary)



Grace Zhou
(Treasurer)



Jonah Duch
(Social Chair)



Heritage Weems
(Outreach Chair)



Christina Weis
(Publicity Chair)



Garth Scanell
(Graduate Liaison)



Matt Kwan
(Graduate Liaison)



Anahit Hovhannisyan
(Freshman Liaison)

2015-2016 CHAPTER HIGHLIGHTS

Career Development

- ❖ MS&T 2016
- ❖ Undergraduate Research Fair
- ❖ Professional Development Workshops
- ❖ Industry Speakers and Tours

Outreach

- ❖ Material Buddies Program
- ❖ 10 Outreach Events
- ❖ Approximately 570 K-12 students reached

Social Activities

- ❖ Ice Cream Social
- ❖ Hockey Team
- ❖ Holiday Potluck Celebration
- ❖ Chinese New Year Celebration
- ❖ Waffle Day Party
- ❖ End of the Year BBQ



Top to Bottom: RPI Material Advantage members are gathering before the first day at MS&T'15. RPI materials students receive awards at the Eastern New York ASM Awards Banquet.

Statistics

<u>2015-2016</u>	<u>2014-2015</u>	<u>2013-2014</u>	<u>2012-2013</u>
<ul style="list-style-type: none"> ❖ 10 Outreach Events ❖ 4 ASM Dinners ❖ 2 Industry Tours ❖ 12 MS&T Student Attendees ❖ 10 Networking Events ❖ 829 Member Attendances 	<ul style="list-style-type: none"> ❖ 9 Outreach Events ❖ 6 ASM Dinners ❖ 2 Industry Tours ❖ 15 MS&T Student Attendees ❖ 12 Networking Events ❖ 641 Member Attendances 	<ul style="list-style-type: none"> ❖ 15 Outreach Events ❖ 5 ASM Dinners ❖ 4 Industry Tours ❖ 15 MS&T Student Attendees ❖ 7 Networking Events ❖ 389 Member Attendances 	<ul style="list-style-type: none"> ❖ 9 Outreach Events ❖ 3 ASM Dinners ❖ 2 Industry Tours ❖ 21 MS&T Student Attendees ❖ 10 Networking Events ❖ 320 Member Attendances

2. Programming

Rensselaer Polytechnic Institute (RPI) Material Advantage programming can be broken down into three distinct categories: career development, service and outreach, and social activities. These topics are strongly chapter themed, and will be discussed in greater detail in the following pages, while the main programs that originated from the chapter are described in detail here.

Over the 2015-2016 academic year, RPI Material Advantage chapter hosted 15 traditional General Body Meetings (GBMs) to inform members of upcoming events, opportunities available and ways that they could get involved in the chapter. These GBMs were designed to meet students' different needs. Some GBMs were tailored towards professional development, such as GBMs offering members consultation for the upcoming career fair each semester. Others hosted speakers to provide networking opportunities.

The RPI Material Advantage chapter also hosted 16 social events. Some social programs include the creation of a Material Advantage intramural hockey team, 5 holiday themed socials, and 3 games nights to help students de-stress. These events served as great opportunities to promote interactions between students and faculty as well as between students of different class years.

RPI Material Advantage continued the tradition of cultivating professional and academic development with the annual Undergraduate Research Fair (URF), a Professional Development GBM before each career fair, and extra help sessions for core courses in the Materials Engineering curriculum. The objective of the URF is to provide students with an opportunity to meet professors and graduate students from various research groups in order to find undergraduate research opportunities. Professional Development GBMs are held before career fairs to prepare our members for this important event by resume critiquing.

The last major branch that makes up this chapter of Material Advantage is the outreach program which provides services and outreach to both the RPI community and K-12 school in the surrounding districts. This outreach program is focused on introducing students to materials science and STEM topics as a whole. Material Buddies is a program that we developed to focus on teaching and unifying our volunteers. Volunteers choose a topic in materials science and develop a 10-15 minute presentation paired with interactive demonstrations to teach a specific concept of material science in an engaging way. To further introduce students to the engineering design process, the volunteers also develop open ended engineering design challenge prompts. Some specifically covered include shape memory alloys, ferromagnetic materials, material structure construction, and fiber optic technology. The Material Buddies demonstrate primarily in local elementary, middle, and high schools, as well as local science fairs and STEM events. Material Buddies has been made possible this year through generous funding from our MSE Department as well as grants from ASM.

2.1 GENERAL BODY MEETINGS (GBMs)

Ice Cream Social

This year RPI Material Advantage continued the tradition of holding an Ice Cream Social as its first event of the year. This is a major recruiting event for the chapter by encouraging new first year students to socialize with upperclassmen while making ice cream sundaes. The Material Advantage officers gave an overview of the chapter and invited anyone

interested to be involved. The chapter scheduled the event right after the freshman advisor meeting this year to further introduce the new students to the Materials Research Center, the MSE Department, and of course, Material Advantage.

Professional Development GBM

The RPI Material Advantage chapter hosts a professional development program every semester before the career fair hosted by RPI. The meetings open with a PowerPoint discussing general career fair information, a list of companies hiring Materials Engineers and advice on talking to recruiters. Freshman and sophomores are encouraged to attend for professional tips, resume critiques, cover letter help, and other advice from upperclassmen and graduate students. After the presentation, students are encouraged to mingle among class years and discuss previous internship, co-op and research experience.

Materials Selection Poster Session

In collaboration with the Materials Selection class at RPI, the members of RPI MA hosted a poster session to the RPI campus. The posters displayed the projects completed by the students in the class. Students and faculty were able to socialize and discuss the work over donuts and coffee.

Class Registration GBMs

The chapter hosted a meeting before class registration opened up to assist freshmen and sophomores in scheduling courses for the upcoming semester. Upperclassmen also aided students in creating “four-year plans” to ensure all graduation requirements would be met. Topics such as dual majoring, minoring, studying abroad, co-ops and the co-terminal program were discussed in depth. These GBMs served as a way to enhance the chapter’s ability to informally mentor students and reinforce bonds between class years.

Undergraduate Research Fair

Professors and graduate students of the Materials Science and Engineering Department were invited to display research posters and inform interested students of possible research opportunities within the department. Almost all the labs in the Materials Research Center were present and able to answer any questions that undergraduate students had. This proved to be a good way to introduce graduate students to undergraduate students. Every year, this event allows students to find research opportunities.

RPI Alumni Speaker - Ben Scheiner

This was the last event the RPI Chapter held for the Spring Membership Drive during the month of March. Benjamin Scheiner, an RPI Materials Engineering alum, was invited to speak to the members of RPI MA. Scheiner discussed his start-up experience since graduating with his Masters of Engineering in 2011, and the skills he has acquired in the workplace which earned him each of his jobs. The presentation was followed by a discussion among the attendees about choosing and changing majors, as well as making other life decisions.

Lucideon Speaker - Kaitlyn Mazza

Kaitlyn Mazza, a 2012 graduate of Rensselaer Polytechnic Institute, spoke to the membership about her time at RPI and in the workforce. She explained how she has used what she has learned in her position at Lucideon, especially pertaining to metallography. Students also brought resumes to the event and spoke to Mazza about potential internships and other work opportunities at Lucideon.



RPI Alumni Kaitlyn Mazza speaks to current RPI students about her job at Lucideon.

ASM Speakers GBM – Stephen Healey and Scott Oppenheimer

Material Advantage brought two ASM members to speak to RPI students. Stephen Healey is the current president of the local ASM chapter, and is a metallurgist for Knolls Atomic Power Lab. Scott Oppenheimer is another ASM member and metallurgist for General Electric. The two speakers took a relaxed, informal, and approachable attitude toward the event and spoke about their educational background, work experience, and general life advice. The event became conversational and many of the 21 students in attendance were vocally involved.

3. Career Development

RPI Material Advantage provides its members with various professional development opportunities. These opportunities include the Undergraduate Research Fair, MS&T Conference, local ASM dinners, industrial GBMs, and industry tours. The chapter works closely with the Materials Science and Engineering Department, the School of Engineering, and the Eastern New York ASM chapter to prepare students for the future. Our chapter also established an alumni data base with various job and industrial tour opportunities due to our Alumni Social Event during MS&T'15.

3.1 MATERIAL SCIENCE & TECHNOLOGY CONFERENCE (MS&T) 2015

RPI Material Advantage organized and funded 12 undergraduates to attend MS&T in Columbus, Ohio. This trip was funded by the RPI Materials Science and Engineering department and the Eastern New York ASM chapter. Students attended lectures, plant tours, and networking events. The following spring semester, each attendee prepared a short presentation about their experience and three were selected to present at the Eastern New York ASM dinner.

Professional and Technical Lectures

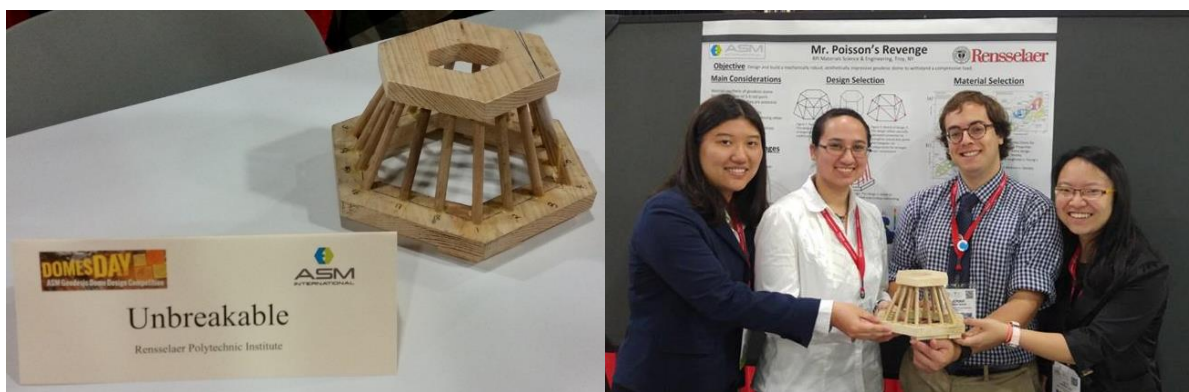
Students attended professional development talks at MS&T'15 on topics such as career management and Professional Development Training in graduate school. Students also attended the ACerS tour to Allied Mineral Products, Inc. as well as various technical talks, including the one given by RPI graduate student and ACerS awardee Emily Aaldenberg.

Networking

RPI Material Advantage members attended events and met students and professionals from across the globe. Events included the ASM Women's Breakfast, Chapter Leadership Workshop, a student networking mixer and the RPI Alumni Social. Students had the chance to share their resumes, talk to people in their field of study and discuss current research in many areas of material science.

ASM “DomesDay” Competition

A team of RPI Material Advantage members entered as one of twelve teams as part of the ASM “DomesDay” Competition at the MS&T conference. The team's project was scored based on mechanical strength when compressed using two parallel plates until failure, the aesthetics of the project, and an ‘elevator pitch’ given to the judges followed by questions from the judges and audience.



RPI's “DomesDay” Project is featured on display before the mechanical testing portion of the competition (left). The RPI “DomesDay” team poses with their final project at the MS&T 2015 Conference in Columbus, Ohio (right).

ASM Women in Engineering Committee

At the MS&T ASM Women in Materials Engineering Breakfast, multiple RPI Material Advantage members were introduced to the ASM Women in Engineering Committee. Three students from the RPI Material Advantage Chapter were in attendance. By attending conference calls, members were able to provide the committee with student feedback and gain experience of event planning on a large scale.

3.2 TOURS

Ecovative Tour

RPI Material Advantage organized a tour to Ecovative Design in Troy, NY. Two employees led the tour of 12 Rensselaer students and spoke about their experiences on the job. They also described the different processing steps and machinery used to produce the company's mycelium packaging. The students also had the opportunity to meet with a Rensselaer Polytechnic Institute alum who currently works for the company.

Scarano Boat Building Tour

The Scarano Boat Building Company located on the Hudson River in Albany, NY accommodated 8 Material Advantage students on a tour of their plant. Students were led into the facilities where various types of vessels had been built. Throughout the tour, the

students were able to make observations of different materials engineering topics used in real life applications such as laminated structures and methods for corrosion prevention.



Two students stand aboard a ship during the Scarano Boat Building Plant Tour.

ACerS Student Tour at MS&T

At MS&T'15, ACerS organized a tour to Allied Mineral Products, Inc, in Columbus, OH. Two RPI Material Advantage members attended the tour. During this tour students were introduced to a foundry's purpose, toured the plant's staging areas, and talked with members of the company's production and research/development divisions.

3.3 DEVELOPMENT ACTIVITIES

Chapter Leadership Workshop at MS&T 2015

At MS&T, the current RPI MA board members attended the chapter leadership workshop and successfully collaborated on strategies to improve attendances and fundraise. Officers also discussed the possibilities of establishing an officer network to connect Material Advantage chapters. A similar concept was discussed for all student members.

Mechanical Properties Lab Help – February 2016

RPI Material Advantage held a Mechanical Properties lab report help session to help students with the first major lab report of the class. In addition to the TA's officer hours, graduate students were available to help students understand the concepts behind collecting and analyzing data, as well as technical writing.

ENGR 1600 – Material Science for Engineers Study Session – February 2016

A study session for the materials science focused course for freshmen and sophomores was hosted before the class's first cumulative exam. One graduate liaison, as well as other volunteer graduate students were available to answer students' questions on the material to be covered. Since ENGR 1600 is a required course for several engineering majors outside of materials engineering at RPI, this event attracted many students from different engineering disciplines across campus.

Work Experience Book

RPI Material Advantage hosts a compilation of Materials Science and Engineering work experiences including Co-ops, internships and Research Experience for Undergraduates (REUs). This book, hosted both digitally and on paper, was developed for all members with the goal of creating a fluid professional network. It especially serves as a valuable resource for students searching for work experience and would like to contact upperclassmen and recent RPI alumni.

Company Information Book

A company information book is being developed for the chapter to create a network to help members contact industrial speakers. This book provides contact information, company

name, and potential/past speakers' contact information. This list of general body meeting speakers also helps with chapter management.

Business Cards

Early in the fall semester, the RPI Material Advantage chapter offered its members the opportunity to order MA business cards to further help with professional networking. The order was placed early enough in the semester so that students could use them at the on-campus career fair. The business cards contained information such as the student's name, major, class year, email address and LinkedIn profile link.

3.4 EASTERN NEW YORK ASM DINNERS

ASM-CDMMS Poster & Micrograph Contest and Exhibition – November 2015

This joint Eastern New York ASM and Capital District Microscopy and Microanalysis Society event featured a poster and micrograph contest and dinner. Dr. Edward Principe gave a presentation, "A little Bit about what is Possible – An Overview of Possibilities and Capabilities of a Charge Particle Tool Suite in Microscopy." The talk focused on nanofabrication with focused ion beams and three dimensional image processing. The majority of poster and micrograph presenters were graduate and undergraduate students from the RPI MSE department. Local ASM and CDMMS board members judged the 25 entries. Many industry guests attended, representing GE Research Center, Knolls Atomic Lab, College of Nanoscale Science and Engineering, FEI Microscopes, and more.

Eastern New York ASM MS&T Presentations – April 2016

ASM helped fund twelve RPI students to attend MS&T in Columbus, Ohio. Three of these students prepared presentations to give at the April ASM dinner to speak about the projects they were involved in during the trip, as well as their overall experiences.

Eastern New York ASM Scholarship and Award Banquet – May 2016

Students were able to network with industry professionals and professors before dinner and the award ceremony. These awards included inductions into the Materials Honor Society, Alpha Sigma Mu. The 2016 Geisler Award winner was Akane Suzuki, recognizing an outstanding young materials engineer from the Eastern NY ASM Chapter who has made significant contributions to the materials engineering field before the age of 40. Two undergraduate students and one graduate student from RPI were also awarded the Eastern NY ASM chapter scholarships. The 2015 Geisler Award winner, Dr. Ying Chen, gave a presentation on "Shape Memory Alloys and Ceramics."

4. Service

RPI Material Advantage provides service and outreach to both local K-12 students and the RPI campus. Our educational outreach program, Material Buddies, has been successfully growing and developing over the past couple of years. The goal of the program is to spark future scientists' and engineers' interests in materials and expose undergraduate students to community service and outreach opportunities. We place a heavy emphasis on cultivating the understanding of materials concepts on multiple levels from the elementary school children we teach to the undergraduate students who volunteer with Material Buddies. This approach has created both a fun experience and sustainability in our program.

4.1 CAMPUS OUTREACH

Activities Fair – September 2015

RPI Material Advantage held a table at the annual activities fair to showcase the chapter's highlights and materials science concepts. The members demonstrated one of the outreach activities, freezing marshmallows with liquid Nitrogen, to draw interest from students. Material Advantage and material science pun stickers were also distributed. This event serves as the incoming class's introduction and first impression to the RPI Material Advantage Chapter.

Medalist Open House – September 2015

This Open House is held annually to award and congratulate high school students who have won the RPI Medalist Scholarship. RPI Material Advantage helped introduce Medalists to the RPI Materials Science and Engineering (MSE) Department by showcasing the Materials Research Center (MRC) and the materials major to these students. Prospective RPI students were able to tour the Electron Microscopy lab as well as the nanoscale characterization lab, and ask questions to a group of current undergraduate Materials Engineering students. A group of volunteers also performed materials demonstrations outside of the MRC.

Fall Open House – October 2015

This Open House is an annual event for high school students interested in attending RPI. RPI Material Advantage chapter recruited volunteers who helped the RPI MSE department showcase the MRC and the materials engineering major to these students. A group of students volunteered at a demonstration table, while others answered questions posed by prospective students and their parents in the student lounge. Other students led short lab tours of various labs in the MRC.

Accepted Students' Day – April 2016

This is an event where RPI Material Advantage helps the RPI MSE Department promote the department and the materials science and engineering major to prospective freshmen. Some RPI MA members held a demonstration table in the Polymer Center, answered questions and gave lab tours to the prospective students and their families. Others hosted a materials engineering major information table in the Darrin Communication Center. There, they showcased computer simulations and simple demonstrations. The students were also able to talk to the visitors about co-ops, internships, and research experiences.



Two Material Buddies answer prospective students' and parents' questions and discuss the Materials Engineering Department outside the MRC on RPI's Accepted Students day.

4.2 K-12 OUTREACH (MATERIAL BUDDIES)

In an effort to continually improve the outreach events organized by RPI Material Advantage, the Material Buddies program was developed in 2012. Material Buddies is a program focused on the development of the volunteers who interact with students in the Albany area through teaching

demonstrations. The goal of this program is to create sustainability by training knowledgeable and enthusiastic volunteers to effectively communicate the scientific concepts behind the demonstrations. In order to achieve the overall goals of the program, volunteers need to acquire a strong understanding of the scientific concepts being demonstrated, develop a well-organized 10 minute presentation, and provide real life problems and solutions to help students better understand the connections between science and everyday life. Since the implementation of this program, new learning and hands on activities have been developed, and more K-12 students are reach every year. Material Buddies is also many students' first experience with combining event planning, leadership, and public speaking. The practice of these skills and involvement in the chapter through Material Buddies also serves as a stepping stone for the majority of Material Advantage officers before they are elected into their positions.

Niskayuna Outreach – November 2015

This event is an annual outreach event at Niskayuna Central High School that Material Buddies has participated in for multiple years. During two 80 minute classes, RPI MA volunteers presented 4 demonstrations for the students. Topics and projects included Shape Memory Alloy, Jolly Ranchers Fiber Optics, Glass Transition, and LEDs. The topics introduced the applications of specific materials, phase transition past solid-liquid-gas, and band gaps. The RPI students discussed what materials science is and the high school students showed strong interest in the topics discussed, while also asking questions about material specific curriculum at RPI.

Exploring Engineering Day – February 2016

Exploring Engineering Day is an annual event held by the RPI School of Engineering as a celebration of National Engineers Week. RPI Material Advantage exhibited a hands on activity with box spectroscopes and rainbow diffraction slides to teach children and families about diffraction and refraction.

Paige Math and Science Night – March 2016

Paige Science fair is an annual outreach event that attracts both elementary and middle school students. RPI Material Advantage presented materials science concepts behind three engaging demonstrations to more than 50 students and parents and furthered their interest in the STEM field. The demonstrations included Jolly Rancher Fiber Optics, hydrophobic material, and freezing marshmallows with Liquid Nitrogen. The focus for an elementary school audience was to excite the youth to further pursue and investigate science.



Material Buddies members Justin Weinstein (top) and Steven Lee (bottom), demonstrates materials engineering demos at Shenendehowa Science and Health Discovery Night.

Shenendehowa Science and Health Discovery Night – April 2016

This event held in the Shenendehowa School District annually attracts K-12 students and their families, with elementary students being the majority of the audience. The RPI

Material buddies were posted at a table to demonstrate various materials engineering concepts and topics, and were adaptable for different ages. The demonstrations focused on water and included hydrophobic surfaces, surface area to volume ratio dependence, and surface tension.

Southgate Elementary School Outreach Visit – April 2016

RPI Material Advantage members traveled to Southgate Elementary School to do demonstration activities with two class periods of 6th graders and one class of 4th graders. The volunteers utilized space in the elementary gymnasium to split the classes into two groups to rotate between two demonstrations. One group did the Temperature demonstration, which involved observing the effects of both boiling water and liquid nitrogen on a bouncy ball, the glass transition temperature of a flower by observing it shatter, gas laws with balloons, and the boiling point of liquid nitrogen. The second group explored water related demos such as surface area to volume dependence for reaction rates and the hydrophobic Lotus Effect dewetting from nanostructure surfaces.

Troy By Design – May 2016

Troy By Design is a collaboration between community partners and RPI organizations. This yearly event brings together designers and makers from the Troy community and Rensselaer Polytechnic Institute campus to showcase work, stimulate imagination, and foster collaboration. Interested students and community guests who attended this event close to the RPI campus were introduced to engineering design, specifically the structure-property-processing relationship for Materials Science. Demos performed nano/big cups (surface tension vs gravity), semiconducting water, and Jolly Rancher fiber optics.



A class of elementary students explore materials engineering topics with two demonstrations given by two Material Buddies at Southgate Elementary School.

5. Social Activities

While RPI Material Advantage chapter dedicates most of its time to outreach and professional development, social activities are also viewed as a crucial tool to build a successful network between students and alumni, as well as within our department. This year, to highlight the diversity within the Materials Science and Engineering Department, the RPI Material Advantage chapter held several cultural social activities, such as the End of Year Potluck Celebration, a dreidel making event, and a Chinese New Year Celebration. One major activity that RPI MA took on this year was the formation of a Material Advantage Hockey team which consisted of seven Material

Advantage students. Another featured social activity that was offered this year were several games nights. These activities were developed to bring the community together and to build a causal atmosphere within the department. Recruitment is done simultaneously at many of our social activities if there are students who have never been involved in Material Advantage before.

Activities Fair

RPI Material Advantage held a table at the annual activities fair to showcase the chapter's highlights and introduce materials science. RPI Material Advantage demonstrated one of the Material Buddies outreach activities, freezing marshmallows with liquid Nitrogen, to draw interest from students.

MS&T Alumni/Student Social

At the MS&T conference in Columbus, Ohio, the RPI chapter had the opportunity to socialize and network with Material Advantage members from different colleges in the United States at the student dance meet and greet.

Hockey Team

The RPI chapter of MA helped sponsor a D-League hockey team through the RPI club hockey program. MA members who did not decide to join the team were still able to enjoy the games and cheer on their classmates. At two of the Sunday night games, MA hosted social gathering before and during the games with pizza, soda, cider and lots of cheering.

Halloween Senior and Graduate Student Social

The seniors and grad students of the Materials Department hosted a Halloween party in the RPI Materials Research Center (MRC). Snacks were provided by MA, while the drinks were purchased through a fundraiser that had collected money throughout the month in the MRC lounge. Costumes were encouraged and all the students seemed to enjoy socializing after a week of classes.

Holiday Potluck Celebration

The Holiday Potluck celebration is now an annual event put on by the RPI Material Advantage chapter and the Materials Engineering Department. For the second year in a row, students and faculty were encouraged to bring a dish to pass around at the end of the fall semester, right before finals week started. This event has become the chapter's most successful event with high attendance from faculty, graduate and undergraduate students. This event provides a more relaxed environment for the undergraduate students to interact with their professors and teacher's assistants while also experiencing food from around the world. A group of students even gathered to sing Christmas Carols to the crowd.

Games Night

Hosting games nights last year proved to be a big success, so the event was carried into this year. Three games nights were held, typically after weeks where there had been many midterms given throughout the department. One night had a poker theme, and the winner of the game was awarded a water bottle featuring the Material Advantage logo, while another games night featured card games, monopoly and mahjong.

Dreidel Making

The RPI chapter of MA teamed up with RPI's Hillel organization to host a dreidel making event with Sufganiyot (Fried Jelly Donuts). Air drying clay was used that hardens overnight and paint was used for decoration. Some Hillel members were there to bring the holiday spirit with a little bit of Jewish history, the meaning of the characters on the dreidel, and funny Chanukkah theme music. All in all, this event made for a wonderful fifth night of Chanukkah.

Chinese New Year Celebration

To promote the cultural diversity in the Materials Science and Engineering department, the RPI Material Advantage chapter celebrated Chinese New Year for the second year in a row. The lounge in the Materials Research Center (MRC) was decorated with dragons and paper cutouts, and faculties and students were encouraged to dress in red. Attendees learned about Chinese culture and customs and were able to enjoy cultural dishes to celebrate the New Year.

Saint Patrick's Day Senior and Graduate Student Social

Faculty and Students over the age of 21 celebrated Saint Patrick's Day a few days late at the end of the RPI Spring Break. Attendees socialized over some beer and snacks. This event was held in the month of March, during the Spring Membership Drive, and this event encouraged two new students to register for Material Advantage Membership.

Waffle Day Party

To celebrate Waffle Day, which is March 25th, as well as Saint Patrick's Day simultaneously, the RPI Chapter of MA hosted a social event at which waffles made with green dye were served. These green waffles were surprisingly delicious and popular. This event coincided with the Saint Patrick's Day Senior and Graduate Student Social so that students not yet 21 could still celebrate the holiday with the department. This event was also part of the Spring Membership Challenge, and was successful in recruiting many new members.

Contra Dancing – April 2016

This event was recommended by a graduate student who discovered public contra dancing sessions nearby. Contra dancing was a new experience the majority of the nine students who participated and it urged the students to breaking out of their comfort zones and try something they have never done before.



RPI MA students try Contra Dancing for the first time at the Albany Elks Lodge.

End of Year BBQ

Each year, the RPI MA chapter hosts an end of the year BBQ in May in collaboration with the MSE Department. This event takes place during the study days before finals week to reduce stress and celebrate the completion of another year with friends and colleagues. The stone walk way in front of the RPI Material Research Center is used to enjoy the beautiful May weather and grill up some hamburgers and hotdogs while students and faculty members socialize in the sun.



Burgers are grilled for the Material Advantage Barbecue outside the MRC on a beautiful day before finals week (top left). Students from different class years meet and socialize at the MA Barbecue (top right). The MA Hockey players pose as a team after a game (bottom left). Students unwind after a week of testing with card games at one of the MA Games Nights (bottom right).

6. Chapter Management

RPI Material Advantage Chapter is run by an executive board of seven officers including chair, vice chair, secretary, treasure, publicity chair, outreach chair, social chair and associate liaisons that meet weekly for one hour. Associate liaisons, including one freshman and two graduate students, attend weekly meetings to represent their respective groups, particularly when events are planned. The meetings are directed by the chair with each executive board member providing input related to their role. Officers are encouraged to take on events that arise throughout the semester, which provides them with multiple professional development opportunities.

6.1 OFFICER DUTIES

Chair

The chair conducts all meetings of the chapter, sets the weekly agenda, delegates committee responsibilities, and makes committee appointments. The chair is the point of contact to the Material Advantage advisor, National Material Advantage, the Eastern NY chapter of ASM, the RPI School of Engineering, and the RPI Materials Science and Engineering Department. The chair also organizes the annual trip to MS&T.

Vice Chair

The vice chair organizes, plans, and runs all general body meetings. This includes setting the semester schedule, reserving rooms, and acquiring resources needed such as projectors. The vice chair also plans and organizes social activities.

Secretary

The secretary maintains all chapter records and keeps meeting minutes at all Executive Board meetings. This person acts as a correspondent for the chapter and fulfills all reporting requirements, such as annual reports. The secretary submits information to society headquarters to highlight chapter activities. The secretary also takes on any other organizational duties assigned by the chair.

Treasurer

The treasurer receives, records, and deposits all funds paid to the chapter. This person disburses the funds as authorized by the Executive Board and prepares financial reports for the chapter and society headquarters, while also keeping track of available scholarships and grants. Further, the treasurer helps generate new fundraising ideas and oversees bake sales. This year, the treasurer also designed and ordered polo shirts and MA business cards for the MSE Department and MA members.

Publicity Chair

The publicity chair oversees the bulletin board in the Materials Research Center and advertises general body meetings and social events with emails and posters. The publicity chair also writes and sends out weekly newsletters to keep the members updated. This person also maintains the chapter website and oversees activity on the chapter's Facebook page.

Outreach Chair

The outreach chair coordinates all school visits and is the point of contact for the schools, teachers, and students going on each outreach event. The outreach chair organizes bi-weekly meetings for Material Buddies and keeps track of supplies for outreach events, while training volunteers and compiling the Outreach Grant.

Social Chair

The social chair compiles the semester schedule for social activities, helps the vice chair with planning large events, and develops new activities and events for networking and recruitment of new members.

Graduate Student Liaisons

Graduate Student Liaisons act as the primary interface between graduate members and the chapter. In addition, they represent the interests of graduate members and their availability when planning events.

Freshman Liaison

The Freshman Liaison acts as the interface between freshmen members, potential freshmen members, and the chapter. This person represents the interests of freshmen and thinks of ways to involve and recruit more first year.

Faculty Advisor

Professor Daniel Lewis is the primary contact with Material Advantage headquarters and receives chapter materials for distribution to officers. He advises chapter officers on forming and implementing goals, objectives, and programs.

6.2 ORGANIZATION AND PROCEDURES

Recruiting Activities

At the beginning of each fall semester, Material Advantage recruits heavily for new members. Material Advantage participates in several events, including an Ice Cream Social and the on campus Activity Fairs aimed towards the incoming freshman. This exposes students to the Materials Science and Engineering department and the benefit of being a member of Material Advantage. The chapter also participated in the MA spring membership challenge. Throughout the month of March, the organization hosted three social events, two professional talks and two academic help sessions. The strategic planning that went into these events lead to the chapter winning the “Most Creative Recruitment Strategies” award and a \$250 prize. Previously, the chapter relied on posters and in-class verbal advertising to promote events. This year, RPI Material Advantage developed a Facebook page and created “Facebook events” to invite students to various activities. This page was also updated with pictures to showcase past events and publicize the club’s work.

Executive Board Elections

Elections are held every spring semester in March or April. Advertising is initiated at least a month in advance with email notifications and announcements at general body meetings. Candidates are required to fill out a survey and send a platform describing their qualifications, involvement, and reasons for running for the current position. The chapter then holds a General Body Meeting to vote for all positions. This year, the meeting was concluded with a movie to congratulate the newly elected students, as well as give the rest of the students a study break.

Training

Shortly after elections, elected officers begin attending Executive Board meetings, and current officers spend a month helping elected members transition into their new roles. The old officers provide a summary of their work for the past year and discuss it with the new officers. The officers are expected to be the most involved in the chapter, attending nearly every event. At the end of the semester, the Executive Board also holds a spring planning meeting where officers set their personal goals for the next academic year.

Finances

The treasurer oversees the finances of the chapter. The RPI Student Union offers a bank account service for student organizations. The treasurer keeps records and makes deposits

and withdrawals for reimbursements. In order to keep track of finances, a budget is constructed based on interest and past attendance of events from the chapter's curated activity reports.

Record Keeping

RPI Material Advantage keeps meticulous records of events and chapter information. The officers maintain a shared folder with Dropbox to share files for the current year and up to 3 years previous. Records from years before are stored on a hard drive in the office of our faculty advisor as well as on a CD. The files can be broken down into Agendas, Activity Reports, Events, and other important information. The record keeping ensures that the knowledge acquired by officers can be shared from year to year, and when planning an event, officers can use these resources as a guide. The chapter also maintains a Google calendar to keep track of events and meeting times. There is one calendar for board members, and another for all Material Advantage members.

Communication

The chapter's website is maintained by the Publicity Chair. This site features information about upcoming events through a link to the organization's Google Calendar, membership, officer contacts, academic references, previous job records, and scholarship information. The publicity chair also sends a weekly email to the RPI Material Advantage list with event information and updates. The Executive Board also maintains a bulletin board outside of the student lounge and a RPI Material Advantage Facebook page which utilizes Facebook Events to invite students.

6.3 EXECUTIVE BOARD DEVELOPMENT

Ice Skating Night – December 2015

This social gathering for members of the Executive Board was held with the goal to spend time together in a more relaxed setting, rather than the normal board meetings. An hour of skating at the Hudson Valley Community College rink was followed by a pleasant dinner at Dinosaur BBQ.

Grafton Lake Hike – April 2016

Due to the success of the previous executive board bonding trip with the 2015-2016 board, similar events were planned for the 2016-2017 executive board. Once elections took place and the upcoming board had been determined, planned were made to introduce the officers to each other and build the member as a team. A hike around Grafton Lake was planned, and members from both the previous and upcoming boards attended. The 2 mile hike provided enough time for everyone to get comfortable with each other, and even informally discuss plans and ideas for the chapter in the upcoming year.



The 2015-2016 executive board de-stresses and bonds with some time on the ice at the Hudson Valley Community College Rink (left). Students from both the 2015-2016 executive board as well as the newly elected board members enjoy the beautiful April with a hike around Grafton Lake (right).

6.4 CONTINUATION OF EXCELLENCE

RPI Material Advantage chapter's continuation of success is built on succession planning, meticulous record keeping, and an active chapter membership base. Succession planning has involved creating opportunities for general members to gain exposure to officer positions through shadowing Executive Board meetings. The RPI Material Advantage general body has made the organization successful by taking advantage of the resources provided and by being involved in networking opportunities and events. The chapter offers its members events that cover a wide spectrum of interests from industry speakers and plant tours to professional and academic meetings and social events like holiday celebrations and potlucks.

RPI Material Advantage is proud to be one of the most active and successful professional societies on campus through a balance of these social and professional development programs, as well as outreach events. Professor and industrial talks and plant tours have increased technical knowledge while conference trips for MS&T, ASM dinners and general body meetings have increased our networking skills. Overall, our chapter upholds its distinguished program by continuously recruiting active members, developing new programs, and continuing to receive support from our advisor and our department.

7. CALENDAR OF EVENTS

#	Event	Date of Event	RPI Student Attendance
<i>Fall 2015</i>			
1	Activities Fair	09/03/2015	55
2	Ice Cream Social	09/08/2015	35
3	Rensselaer Medalist Open House	09/12/2015	29
4	Professional Development GBM	09/22/2015	19
5	Fall Open House	10/17/2015	30*
6	Hockey Team Social	10/17/2015	15
7	Eastern NY ASM October Dinner	10/27/2015	22
8	Halloween Social	10/29/2015	20
9	Niskayuna High school Outreach	11/05/2015	4
10	Class Registration GBM	11/05/2015	14
11	Hockey Team Social	11/08/2015	4
12	Undergraduate Research Fair	11/12/2015	21
13	Games Night 1	11/16/2015	18
14	Eastern NY ASM Poster Contest	11/17/2015	20*
15	Executive Board Ice Skating bonding	12/05/2015	8
16	Scarano Boat Building Tour	12/09/2015	8
17	Dreidel Making	12/10/2015	14
18	Holiday Potluck	12/14/2015	80*
<i>Spring 2016</i>			
19	Professional Development GBM II	02/09/2016	14
20	Chinese New Year Celebration	02/10/2016	40*
21	Exploring Engineering Day	02/20/2016	9
22	Mechanical Properties Lab Help	02/23/2016	29
23	Games Night 2	03/01/2016	14
24	Material Science for Engineers Lab Help	03/08/2016	26
25	Material Selection Poster Session	03/10/2016	60*
26	Executive Board Elections and Movie Night	03/10/2016	15
27	Paige School Outreach	03/18/2016	2
28	Kaitlyn Mazza from Lucideon Speaker GBM	03/23/2016	14
29	Saint Patrick's Day and Waffle Day social	03/25/2016	22
30	Class Registration GBM II	03/29/2016	20
31	Ben Scheiner Speaker GBM	03/31/2016	12
32	Eastern NY ASM Dinner with MS&T Presentations	04/05/2016	11
33	RPI Accepted Students Day Open House	04/09/2016	12
34	Shenandoah Science Discovery Night Outreach	04/15/2016	3
35	Executive Board Grafton Lake Hike Bonding	04/16/2016	8
36	Ecovative Industrial Tour	04/20/2016	13
37	Southgate Elementary School Outreach	04/21/2016	5
38	Executive Board Contra Dancing Bonding	04/29/2016	9
39	Eastern NY ASM Scholarship and Award Banquet	05/02/2016	36
40	Games Night 3	05/06/2016	21
41	Troy By Design Outreach	05/07/2016	3
42	End of Year BBQ	05/12/2016	45
Total:			829

*Estimated