



#### NEW YORK CITY COLLEGE OF TECHNOLOGY

of The City University of New York

Russell K. Hotzler, President Bonne August, Provost and Vice President for Academic Affairs Pamela Brown, Associate Provost

#### **Honors Scholars Program**

Janet Liou-Mark, Director Reneta D. Lansiquot, Assistant Director Laura Yuen-Lau, Coordinator

Founding and Managing Editor: Reneta D. Lansiquot Art Director: Savannah Blodgett Graphic Designer: Evans Alexandre Photographers: Evans Alexandre, Savannah Blodgett

**Cover Photo**: History Blossoms Savannah Blodgett



## Guidelines for Research on Human Subjects Ricky Martinez

 Workshop Teaches City Tech
 Students Research Resources and Techniques
 Zianne Cuff

Honors Scholars Learn
 Elevator Pitch
 Mariah Rajah

Workshop Prepares City Tech Students for

8 Workplace Professionalism Mariah Rajah

9 ePortfolios for Academic and Career Advancement Mariah Rajah

10 Dow: The Hu Element Miguel Gomez and Javier Joya

City Tech Honors Scholars Visit 14 Historic American Museum of

**Natural History** Zianne Cuff



# Guidelines for Research on Human Subjects

Ricky Martinez

With the constant growth of student participants in the Honors and Research Scholars Program, it is easy to overlook rules and regulations when conducting research, specifically research that involves human subjects. At a workshop hosted by Dr. Eric Rodriguez, various scholars from different fields of study learned the importance of following the federal, state, city, and university guidelines for Human Subject Protection (HRP).

Starting off with short introductions by every person in the audience, Dr. Rodriguez gained a general idea of the knowledge everyone possessed on Human Subject Research (HSR). Because few participants knew the HSR guidelines, Dr. Rodriguez quickly explained the entire HSR system and its relation to the CUNY System. As the only coordinator within City Tech (there are a relatively low number of students engaged in this sort of research), Dr. Rodriguez explained the importance of relaying the HSR guidelines.

So how and why are human subjects used in research? After the friendly introductions, the HRP workshop transitioned smoothly to explaining the reasons for using and protecting human subjects. Ethical topics like respect, beneficence, and justice—were addressed in this section of the workshop, as well as, the reasons behind principles like voluntary participation, maximizing benefits while reducing risks, and subject selection equality. Dr. Rodriguez provided the audience with the insights necessary to understand the ethical principles involved when using human subjects.

After explaining the moral concepts involved in research, Dr. Rodriguez detailed the different types of certifications and reviews necessary. There are numerous types of IRB reviews; some kinds of research are exempt from IRB review and others receive an expedited review. The type of review is based on factors relating to the level of research conducted, from standard educational research to a higher level of research. Certain types of people receive special protection, such as prisoners and pregnant woman. Dr. Rodriguez also discussed the need to avoid incorporating identifying information of subjects in research reports.

The requirements for each researcher participating was explained near the end of the workshop. Dr. Rodriguez explained the required certifications needed within the program. The Responsible Conduct of Research (RCR) certification, required of everyone, and the HSR certification, only needed for Human Subject Research, were two of the certifications that were deemed necessary by Dr. Rodriguez.

The valuable information presented in this Emerging Scholars meeting can always be revisited by talking to Dr. Rodriguez, the HRPP coordinator of City Tech.

### Workshop Teaches City Tech Students Research Resources and Techniques

Ricky Martinez

Every semester, the Honors and Research Scholars Workshop, "Advancing Library Research Techniques," provides students with an overview on how to conduct research effectively and make use of the library's numerous resources. This workshop dispels any confusion on how to utilize the library's databases properly and affords students an understanding of how to navigate their fields of information adequately. During this hour-long seminar, students were walked through the process of citation and article inspection, and they were encouraged to test out the numerous amenities that the Ursula C. Schwerin Library has to offer.

For researchers, past observations and information from those who worked on similar projects play a huge role in carrying out effective experimentation. The library's database, a massive selection of data hosts an expansive collection of scholarly articles arranged by subject and/or department, covers a vast array of topics from a variety of different disciplines, such as African American Studies, Visual Care Technology, and so forth. This makes the database a fairly structured system to turn to when in need of assistance. Much of the research found in the library's online systems consists of articles that have been peer reviewed, something that is vitally important when looking for scholarly articles that recount past studies on the particular topics of discussion. If an article is unavailable, students are encouraged to request it via the interlibrary loan system, a user-friendly service for sharing resources with other libraries in the city.

Another incredibly important aspect of any research project, presentation, or paper is implementing the correct means of annotation and citation. Making use of a citation manager helps students keep track of their library and internet sources, allowing them to export a reference list in a variety of different formats to their documents when finished. The library is subscribed to a citation manager known as "Easybib," which is capable of managing students' citations from any electronic device, mobile phones included. Competing citation sites, such as Zotero and RefWorks, are tools that automatically make note of content in your web browser and collect all of your research in one manageable interface for future reference, making drafting papers systematically more efficient. Students are encouraged to try out all three of these programs and discover which one works best for them.

The City University of New York catalog on the library's website is an institutional repository dedicated to collecting and providing public access to both scholarly and creative works. Those in need of quotations from books, but unable to find a tangible copy of the text, should check out the E-Resources offered by this catalog in order to obtain information from a listing of worldwide publications and public databases. Scholars can borrow and download eBooks from the CUNY system, or they can have a physical copy of the text delivered to City Tech. There is a separate set of instructions that can be found on how to download an eBook properly using a mobile device located on the City Tech library website in the Help section.

The Ursula C. Schwerin Library has a great number of resources to aid students in their quest for knowledge and insight on research projects as well as coursework. Those who need more information about accessing the computers and make sense of their software should seek support from a librarian at the Reference Desk or visit the library website's Ask a Librarian page.



# **Honors Scholars** Learn **Elevator Pitch**

Mariah Rajah

Opportunity for college students can strike at any moment: on the train, walking to class, or even in an elevator on your way to a job interview. In these moments, it can become a race to introduce yourself, highlight your skills, and leave a prospective employer wanting to know more about you. However, many of us often do not know what to say, how much we should say, or even if it is appropriate to reach out. Honors and Research Scholars this semester were lucky enough to be able to learn about how to brand themselves in order to execute an elevator pitch successfully. In the workshop, "Small Talk: Elevator Pitch," Ms. Nicole Wright, the Program Coordinator of City Tech's very own Professional and Development Center, helped Scholars pinpoint the key features of crafting an effective elevator pitch and the importance of establishing and understanding your own brand.

An elevator pitch, as Ms. Wright described it, is a brief, persuasive speech that introduces you, your skills, and your particular knowledge or ideas to the organizational representative that you are speaking to. This pitch should be interesting, memorable, and succinct, leaving gray areas for the individual to be intrigued enough to want to pursue a sit-down interview with you. Scholars were reminded that in an elevator pitch, it is necessary to know your audience before you begin to pitch yourself. Knowing whom you are speaking to gives you the opportunity to craft the words that will spark an interest in yourself. It is imperative to remember that this is a pitch about you, so be sure to establish your identity: the institution you have attended, your current or past area of study, and what can you offer to the individual that you are speaking to.



In the short time that is allotted, you should be able to present yourself as a brand. Your capabilities, your ideas, and your interests should be highlighted in a speech that spans no more than maybe a few seconds. Another key feature Ms. Wright highlighted was that you should be sure to raise a question or point out that you have specific ideas that could be an asset to the organization. This will also be a conversation starter that makes the person interested in what you have to say.

An elevator pitch . . . is a brief, persuasive speech that introduces you, your skills, and your particular knowledge or ideas to the organizational representative that you are speaking to.

With all this said, it is important to remember that an elevator pitch is a practiced, rehearsed speech that is crafted with the notion that you understand your personal brand. As a student who is graduating soon and entering into a technical industry with many competitors, it is vital to for you to be able to sell what you can do in a proficient and professional manner. However, in order for you to do so, you must recognize your skills, capabilities, and exactly what brand you want to be recognized as. As college students, we all want to be recognized as emerging professionals who can be taken seriously, and for many of us, it begins with crafting an elevator pitch. This rather constricted but important pitch pushes you into branding yourself as exactly what you would like others to know about you. Remember, you are advocating for yourself when preparing this pitch, and with it, you are taking the necessary steps to network and introduce yourself to a potential career.

An elevator pitch takes time, patience, and practice. You will change it multiple times, but as you grow confident in what you are capable of and the brand you wish to be associated with, you will be able to sell yourself better. There is no easy way to begin the process of writing an elevator pitch, but understanding who you are as an emerging professional is the first step. As City Tech students, it is important that there are people like Ms. Nichole Wright of the Professional Development Center and the Honors and Research Scholars Program who work to help us recognize our potential and ways to craft ourselves.



## Workshop Prepares City Tech Students for Workplace Professionalism

One of the hardest transitions a student makes is the one into a workplace. In the workplace, the concept of professionalism takes on a new meaning, and students can sometimes become lost in the switch to a new set of procedures and protocols. As a soon-to-be graduate who is near the time to walk across that stage, the concept of workplace professionalism is becoming more and more apparent to me. In the hope of not only helping me but other New York City College of Technology (City Tech) students recognize this, City Tech's Professional Developmental Center (PDC) and The Honors and Research Scholars Program teamed up to offer a workshop on helping students understand how to survive workplace culture. The workshop helped students to understand workplace ethics. values of professionalism, taking initiative in the workplace, managing relationships, establishing professional and boundaries.

Of course, City Tech prepares its students for professionalism in the workplace in many ways, whether it be the Honors and Research Scholars Poster Presentation or internships in and around the college. Still, as students grow into working

#### Mariah Rajah

professionals, it is often easy to forget what exactly is classified as professional behavior and what is not. The workshop, presented by the PDC coordinator Ms. Nicole Wright, highlighted how very important it is to not only be ethically responsible in the workplace, but to also to step forward and become more proactive in the workplace. In the room, many students commented that they knew that they must dress a certain way, have certain verbal and nonverbal practices, avoid gossip, contribute teamwork and collaborative to projects, and establish interpersonal boundaries, but many seemed not to know how to be proactive in the workplace. In college, being proactive means studying a week or two in advance for a test, but in the workplace, proactive professional behavior takes on an entirely new meaning. According to Ms. Wright, being proactive in the workplace means taking initiative. Initiative in the workplace means not only doing the work that you are presented with, but also going a step further; it means asking to sit in on meetings, inquiring about a project, or shadowing somebody for a day to learn tips and the tricks of the trade. Creating opportunities for yourself in the workplace enables you to learn while showing your level of involvement and your desire to grow as a professional.

As I approach my final year in college, I am coming to realize the evolving nature of professionalism and the way that our culture has changed it. Due to technology, we are expected to always be available for calls and emails, and the time in which we respond corresponds to our professionalism. Social media is now our identity card, so we must present ourselves in the best light in order to been seen and taken as professionals. As millennials, we must realize that the workplace is no longer a physical structure but all around us, and a bigger part of our lives than we would like to admit. Professionalism is no longer a part of us that we get to clock out of when we leave a building, but a lasting part of our character that we must constantly be adding to and keeping up. It is important that we as Scholars understand this change and take advantage of every opportunity that not only the Honors and Research Scholars Program offers, but the Professional Development Center as well. With this help in preparation, we will be ready and able to prepare with other professionals for our place in the world of our work.



### ePortfolios for

### **Academic & Career Advancement**

I am graduating college in a few semesters and, although it is a gratifying feeling, it is also an overwhelming one. As my time here at City Tech ends, I need to put together a collection of my work that displays in the best possible light what I am capable of and what I have done. The collection must be professional, well designed, easily navigated, and accessible by possible employers. One of the affordances of being a student here at City Tech is that we are one of few CUNY colleges to have an online discourse community that allows students to create ePortfolios that aggregates and archives all the work they have done over the years of attendance. OpenLab is an open-sourced digital platform that promotes community, intellectual curiosity, and engagement among students and faculty. As mentioned before, students are given the opportunity to create ePortfolios that can be designed to reflect their work, major, and selves.

In "ePortfolios for Academic and Career Advancement," a workshop offered to Emerging Scholars, Presenter Daniel Alfonzo stresses how important portfolios are to students because they are used to represent the work that they do. As I mentioned in opening, my years here

#### Mariah Rajah

at City Tech are coming closer to an end, and professors have been pushing me to create a portfolio. However, designing a space that showcases my best work is quite a tough task. I thought of creating a printed portfolio, but that limits my visibility. After that, I thought of creating a portfolio on a website which I would have to pay for, and then I remembered OpenLab.

OpenLab, unlike social professional platforms such as LinkedIn, is an extension of City Tech students' resume. After creating an OpenLab account, students have the opportunity to create and design ePortfolios that are that can be easily accessed by the public. As we move further and further into the digital age, having a portfolio that is on a digital platform becomes a necessity; OpenLab offers that to all City Tech students. With the OpenLab team, students can create a portfolio that best represents their work and themselves. An ePortfolio on OpenLab gives students the ability to create a portfolio that is both creative and professional, one that can be changed over time to represent their evolving collection of work. This feature creates an archive that can help employees to see growth in the work students have

done. Along with this, OpenLab also offers students the ability to connect with other students and faculty to share ideas, work on projects, and engage in conversations that will fuel networks and create connections in both the academic and the professional world.

It does without saving that using such a platform as OpenLab, which is offered by a recognized institution, gives a students an edge: Not only does it show involvement in a large community of scholars, but it also affords a space wherein students are able to cultivate a professional persona effortlessly because of the medium itself. OpenLab enables students to advance as scholars and professionals, encouraging students to highlight their best work in such a way that is easily searchable, accessible, and navigable. ePortfolios in general are a great way for students to present their work, but they can be costly; City Tech students are offered the chance to create one for free. It is important that all students become aware of the site and take full advantage of its resources, it is a great way to connect and network with other students and faculty while also offering the potential to be a key feature when they represent their academic work.



The Dow Chemical Company is an American multinational chemical corporation that provides chemical, plastic, and agricultural products and services to worldwide consumer markets. As

of 2015, it was the second largest chemical company in the world in terms of revenue. Inaugurated in 2013, its Northeast Technology Center, stationed in Collegeville, Pennsylvania, is one of its largest research and development (R & D) facilities. The R&D center serves businesses globally and within Dow, focusing on home and personal care products, electrical and telecommunications, and coatings. such as architectural paint and leather coatings. The Collegeville location houses approximately 800 employees ... and we were invited.

On April 22nd, 2016, twenty National Science Foundation (NSF) S-STEM Scholarship recipients and three chaperoning professors (Dr. Diana Samaroo, Dr. Urmi Ghosh-Dastidar, and Dr. Sandie Han) boarded a bus at 8:40 AM in front of City Tech's main doors on Jay Street. The scholars represented a dynamic group of students from Applied Mathematics, Chemical Technology, Computer Science and Biomedical Informatics. Google Maps predicted time of travel to be around 2

hours and 30 mins, expecting us to arrive at Dow around 11:00 AM. With iPhones at the ready, pleasant conversations, and edible snacks and water, we arrived at the chemical company with all limbs intact and an inquisitive mind.

As soon as we arrived, we were greeted by Dr. Abhijit Ghosh-Dastidar who is one of the main personnel that made the trip possible. After a brief introduction of the site by Dr. Ghosh-Dastidar, Ms. Susan Ratz provided a safety orientation. She stressed the importance of chemical laboratory safety for all onsite visitors and employees. The orientation was followed by a pleasant and much healthy lunch, while at the same time, students had the privilege to speak with Dow employees. One could not help but notice that at each lunch table, one or more Dow employees were present. This added a layer of welcoming as well as chaperoning. After lunch, Dr. Joseph Manna, Associate R&D Director gave a presentation titled "The Dow Story". We learned

NSF Advancing Student Futures in Science, Technology, Engineering and Mathematics (S-STEM) Trip participants

> Rimsa Azhar Mukadder Cinar Thierno Diallo Miguel Gomez Anthony Grullon Devya Gurung Manuela Hoyos Hanyu Huang Samuel Isaac Javier Joya Peter Lee Jie Hao Luo Jiaxuan Mei Charles Meyers Gurjot Nijjar **Orest Pavliv** Anthony Pereira Juan Ramirez Marieme Toure Xuebin Zou

that anything we do and use in our daily routines, Dow has a great influence in improving the life-style. The company has many branches hence it is a global chemical company but for our field trip, we learned about the "Elastomers and Electrical telecommunications in general".

The team of scholars, professors and Dow Chemical employees then geared up with safety glasses and white laboratory coats. Due to the size of the group, we were split into three teams, with each team visiting and alternating between all four labs: "the fishbowl", home & personal care lab, mechanical testing lab and the "flame lab". In "the fishbowl", supervised by Dr. Brandon Rowe, we were introduced to a variety of robots that were designed specifically for experimental testing. Each machine took on different roles of mixing, measuring, and calculating specific amounts of "viscous" substances, while connected to computers in order to collect their corresponding data. With the use of these machines, testing can be accomplished accurately and efficiently.

The experiments in the home & personal care lab are very relevant to the real world. In this lab, chemist John Hayes showed us the testing methods to compare the effects of detergents in real-world scenarios. As Mr. Hayes showed us European and American dishwashers, he emphasized the importance of testing cleansing agents to the most relevant models they will be used in and enthusiastically explained the purpose behind every machine in the lab.

Dr. Anny Flory and Mr. Buu-Dang Nguyen gave us a tour of the mechanical testing lab. Dr. Flory explained why it is important to test the various materials in order to have the best "jacket" for electrical cables. In this case, the word "jacket",

which is usually black in color, is referred to as the material around the copper core. She went over the low, medium and high voltage applications. A small presentation on how they test the elasticity, force resistance and elongation was given afterwards. The test was done under room temperature but they have designated chambers where they can have control over temperature for the various applications. Thus far, all the laboratory tours provided quite elegant presentations; many found the "the fishbowl" or the home and personal care lab fascinating. However, the mechanical testing lab was rather appealing and our personal favorite. To see one material stretch to inches, while another material snaps in half captures the chemical composition of different materials.

On the other hand, other STEM Scholars indicated that the "flame lab" was their favorite. This lab, under the supervision of Dr. Manish Mundra, ran tests on different types of cable jackets to prevent or minimize the number of losses, whether human or materialistic, during a fire. A test was shown with two different types of wire jackets; they both were exposed to what is called "methane" flame for fifteen seconds. The first cable, perhaps commercial cable, was completely consumed by the fire in two minutes. After fifteen seconds, the flame was removed but the fire kept going until the entire wire was incinerated. As the wire burned, it leaked --- in the real world, this could cause the surrounding space to catch fire. The second type of wire jacket, being the experimental cable, was exposed to the same test but the fire on the wire immediately extinguished after the removal of the flame. The material used to make this jacket has life-saving potential. This relevance of this work shows how construction companies can use better materials to minimize accidents that could lead to big losses. If materials that are not flame resistant are used during a construction, a fire could move throughout an entire building by means of electrical cables.



To capture the day's events at The Dow Chemical Company, we took a group picture with a large periodic table in the background, emphasizing the most important, obvious, but missing element from the table, Hu (Human). Characterizing Dow's values, a plaque under the periodic table describes the human element as the "force that holds our spirit, our hearts, and our community together. Symbol: Hu. Atomic Number: infinity."



#### Acknowledgements

We wish to thank Professors Samaroo, Ghosh-Dastidar, and Han for providing us with this unique opportunity to look into a large successful multi-national company like The DOW Chemical Company. We would also like to thank Dow and all their coordination staffs for being hospitable hosts and showing us a glimpse of the possible future ahead of us. A special thanks is awarded to Dr. Abhijit Ghosh-Dastidar for making the visit possible and providing everyone with a great experience and incentive to pursue our dreams in becoming STEM-related professionals. This work is partially supported by NSF S-STEM Award #1458714 and a City Tech Foundation grant.

Photo Credit: The Dow Chemical Company

#### The DOW Chemical Company

Dr. Abhijit Ghosh-Dastidar Sr. R&D Manager, Elastomers, Electrical & Telecommunications
Dr. Manish Mundra Associate Scientist, Elastomers, Electrical & Telecommunications (Flame Lab)
Dr. Anny Flory Associate Scientist, Elastomers, Electrical & Telecommunications (Mechanical Testing lab)
Richard Tapper Sr. Technician, Electrical & Telecommunications (Mechanical Testing lab)
Buu-Dang Nguyen Sr. Technologist, Electrical & Telecommunications (Mechanical Testing lab)
Peter Flood Sr. Technologist, Electrical & Telecommunications (Coordination help, Chaperone)
Jennifer Overberg Sr. Technologist, Electrical & Telecommunications (Coordination help, Chaperone)
Sue Ratz EH&S Delivery Specialist, Northeast Technology Center (Site Orientation, Chaperone)
Dr. Joseph Manna Associate R&D Director, Formulation Science
Dr. Brandon Rowe Sr. Engineer, Formulation Science (High-Throughput lab)
John Hayes Chemist, Home, Institutional, & Personal Care (Home & Personal care lab)
Dr. Yichi Zhang Sr. Engineer, Elastomers, Electrical & Telecommunications (Coordination help, Chaperone)
Lori Hamilton Sr. Administrative Specialist Elastomers, Electrical & Telecommunications (Coordination help, Chaperone)



## **City Tech Honors Scholars Visit Historic American Museum of Natural History**

Zianne Cuff

On March 25, 2016, The American Museum of Natural History welcomed City Tech's Honors Scholars into one of the world's most distinguished scientific and cultural institutions. Founded in 1869 by Albert Smith Bickmore, the American Museum of Natural History is a renowned destination for all walks of life, serving as an ideal spot for curious minds to uncover and explore information pertaining to human cultures, the natural world, and the universe. Visitors are allowed to wander at their leisure through all four stories of gallery space and take in the 42 permanent exhibits that cover everything from the creation of the universe to present day. While general admission is free to the public, guided tours that serve to further emphasize the museum's collections and their histories range from \$22-\$35.

Recognized by most as the museum's grand entrance, the Theodore Roosevelt Rotunda features a dramatic "representation of an imagined prehistoric encounter: a Barosaurus rearing up to protect its young from an attacking Allosaurus," which has become a permanent feature surrounded by murals and quotes from one of history's greatest and boldest figures. Three expansive canvases follow the history of Roosevelt's public life from his youth through the course of his expeditions around the likes of Africa, the Panama Canal, and his arduous

adventures navigating the River of Doubt in 1914. From this hall, guests are called to traverse through the echoing halls of knowledge and the chronicles of years gone by that await further inside.

One of the most admirable exhibits is the Frederick Phineas and Sandra Priest Rose Center for Earth and Space, which is recognized for its unparalleled research, awe-inspiring photographs of the Apollo lunar landings, and a plethora of exhibitions that present the exploration of both the known and unknown universes. Suspended inside a masterfully crafted glass cube, this \$210 million project includes both the redesign and revitalization of the museum's entire north side. At the very epicenter of the Rose Center for Earth and Space lies the Hayden Planetarium. The planetarium houses a theater large enough to seat 429 visitors underneath a phantasmagoric projection system that showcases a hyperrealistic view of the cosmos. In partnership with NASA and a variety of other prolific organizations, the custom-made Digital Universe Atlas makes use of a scientifically accurate 3D representation of the observable universe based on millions of conducted studies. This site is the pinnacle for the museum's Space Shows and serves as a foundation for understanding the universe and its inner workings.

For those looking for something to appeal to the paleontologist in all of us, the Dinosaurs Among Us exhibit



is one of the newer, albeit temporary, sites located in the LeFrak Family Gallery on the fourth floor. The evolution of life on earth is a continuous and never-ending process, and this space displays the transition of the dinosaurs of the past into a "new, small, airborne form," birds. Home to an extensive collection of dinosaur oddities from beaks, bones, and claws to nests, eggs, and fossils, this showcase gives visitors the opportunity to discover how the evolution of dinosaurs is still in effect in the present day. The last day to browse through this space to explore the world of these charismatic toothy creatures, and all of their transitions throughout the course of 117 million years, is January 2nd of next year.

The American Museum of Natural History is a staple for those traveling in groups or for patrons who tend to opt for solo adventures into lands unknown. The expansive gallery space appeals to the sense of wonder and the curiosity engrained in all of us. There is no fixed admission price, just a recommended donation, which does not include admission into the Sky Show, IMAX Theater, or temporary exhibits. For the full experience, it is highly recommended to splurge on tickets for guided tours to optimal photography spots and to make use of the facilities that are otherwise off limits. Hours of admission, in depth ticket prices, educational opportunities, and other information can be found on the museum's website.

