The Blue Ridge Chemist

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Radford University Hosts the April Meeting

- High school & undergraduate posters!
- James Lewis Howe Awards!
- High School Teacher Award!
- Keynote Lecture: "Metal Coordination in Drug Development"

VIRGINIA BLUE RIDGE SECTION

AMERICAN CHEMICAL SOCIETY

718th SECTION MEETING

Radford University

Friday, April 11, 2025

PROGRAM

5:00 to 5:30 PM Poster Setup, Center for the Sciences, Main Lobby

5:30 to 6:45 PM Social Hour & Poster Session, Center for the Sciences, Main Lobby

7:00 to 7:15 PM Awards Ceremony, Center for the Sciences, Room M73

7:15 to 8:15 PM Keynote Lecture featuring Tom Piccariello, Room M73

The Virginia Blue Ridge Section proudly announces its flagship event – the annual awards celebration and student poster session!

The social hour and poster session will take place in the lobby at Main Street level in Center for the Sciences. The awards recognition and keynote presentation will take place in the adjacent auditorium, Room M73, in Center for the Sciences.

Heavy hors d'oeuvres will be served during the social hour in place of a sit-down dinner.

To enable planning, an RSVP is requested by Friday, April 4, **seven days** before the meeting by emailing Chris Hermann at chermann@radford.edu, or calling her at (540) 831-5413.

Maps and directions are on the last page of this Newsletter.

Are you – or one of your students – presenting a poster?
Instructions and a poster-session registration form are on p. 15.

Keynote Speaker: Dr. Tom Piccariello

Tom Piccariello is a co-founder of Synthonics (a pharmaceutical company located in Blacksburg, Virginia) and currently serves as its president and chief science officer. Tom's current research focuses on the impact that metal coordination has on pharmacokinetics and pharmacodynamics of biologically active agents. This work led to the creation of ChyloCure, which commercializes another Piccariello invention and is a proprietary formulation of hemp extract. Prior to founding Synthonics and ChyloCure, Dr. Piccariello was vice president of polypeptide drug development at New River Pharmaceuticals and was the lead inventor on their Carrierwave™ technology. He was also involved in the start-up of Insmed Pharmaceuticals, Synthons (a CRO), and Chermetic (a CMO); the latter two he founded and later sold.

Dr. Piccariello has a BS in biology and a PhD in chemistry from Virginia Tech. Over the course of his career, he has worked in areas that involve synthetic chemistry, metallurgy, electrochemistry, plant enzymology, chemical manufacturing, pharmacology and metal coordination chemistry. Dr. Piccariello has over 25 patents to his credit, most of which deal with novel drug-delivery technologies. Dr. Piccariello has over 30 years of experience in developing and commercializing many different products, mostly pharmaceutical. He has been involved in virtually every phase of product development including, inventing, patent prosecuting, regulatory filings (e.g., FDA and EPA), grant writing, product development, business planning, investor relations and marketing.

Presentation Abstract: Metal Coordination in Drug Development

ChyloCure™'s mission is to apply science to ancient remedies pursuant to the production of new products to provide greater health benefit. ChyloCure™ is a division of Synthonics, Inc., a company developing mineral-coordinated chemistry to improve the delivery and performance of pharmaceuticals. ChyloCure™ will capitalize on bringing the benefits of mineral coordination chemistry to the cannabinoid market in the form of Chylobinoid®.

While the majority of companies—approximately 95%—produce standard CBD products, only a small fraction (5%) utilize CBDA. We take this innovation a step further by leveraging metal coordination chemistry to create magnesium-bonded CBDA, the key component of Chylobinoid®, which provides relief from inflammation, restless leg syndrome, anxiety , migraines and related health issues.

Some of the details of the business, the products, the markets, sales and the team will be presented. Key chemistry and biochemistry concepts along with clinical studies data will also be presented.

SYNTHONICS INC.
Metal Coordinated Pharmaceuticals
www.synthonicsinc.com

ChyloCure™
Applying Science to Ancient Remedies

James Lewis Howe

James Lewis Howe was for many years Professor of Chemistry and Head of the Department at Washington and Lee University. As one of the most distinguished chemists in the Virginia Blue Ridge Section, we have chosen to name our annual awards to outstanding college seniors in his memory.

Howe was born in Newburyport, Massachusetts in 1859 – the birth year of Svante Arrhenius. During Howe's career he came to know many famous early chemists, such as Liebig, Wohler, Bunsen, and others. He attended Amherst College, where he pursued his favorite subjects of chemistry, German, and religion. He delivered the commencement address on the subject of "The Scientific Method and Religion".

Howe earned his M.S. and Ph.D. degrees at the University of Gottingen and published his first scientific papers on the subject of aromatic carbon chemistry. He then began an intensive literature search of the platinum metals, beginning a bibliography for which he was to become world-famous. He decided that the most interesting and least known metal of the group was ruthenium.

In 1883 Howe married Henrietta Leavenworth Marvine of Scranton, Pennsylvania. This marked the beginning of a marriage of 60 years. The Howes became the parents of two daughters and a son (who was also a chemist). After Mrs. Howe's death in 1944, one daughter, Guendolen Howe, became her father's constant companion.

Dr. Howe's teaching career began at Brooks Military Academy in Cleveland, Ohio. From there he went to Central University in Richmond, Kentucky, where he was Professor of Chemistry (and later Physics and Geology as well). In 1894 he accepted the Chair of Chemistry at Washington and Lee University, and for almost half a century he was at that institution.

It was at W&L that Howe began his intensive bibliographic study of the platinum group and his outstanding research on ruthenium. In 1917 he was appointed chairman of a special subcommittee on platinum of the National Research Council. His work led to the development of platinum alloys, and averted a potentially crucial shortage in platinum, threatening our efforts during World War I. He later received several presidential commissions dealing with the platinum metals.

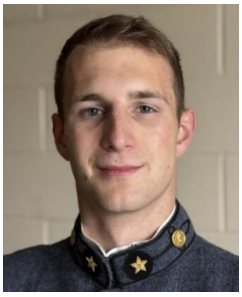
Dr. Howe was beloved by his students and colleagues at W&L. For the first fifteen years he was a one- person department. His lectures were informal, but completely up to date. He was known for his extreme congeniality, charming personality, mild manner, and even temper. He was unceasingly helpful and believed that more could be learned in the laboratory than from lectures.

Dr. Howe's unflagging energy found him serving in many capacities outside the scientific field. He was an Elder of the Lexington Presbyterian Church, an active Mason, and held positions in the Town Council in Lexington and the People's National Bank of Lexington.

Howe Awardees 2025

	**Lillian Burns –** Hollins University **Hometown**: Bacliff, Texas **Degree**: BS in Chemistry, May 2025 **Honors**: CRC Press Chemistry Achievement Award Spring 2023. Dean's List Fall 2021 to Present. Sigma Xi. Member of ACS.
	**Jessica Bryant –** Liberty University **Hometown**: Fort Worth, Texas **Degree**: BS in Chemistry, May 2025 **Honors**: 2nd Place Liberty University Research Week Undergraduate Basic Oral Presentation. Dean's List. Member of LU Honors College. Recipient of NSF-REU Internship. Member of ACS and Scientific Research Society.
	**Ella Lockhart –** Radford University **Hometown**: Christiansburg, Virginia **Degree**: BS in Chemistry, May 2025 **Honors**: 2024 ACS Undergraduate Award in Analytical Chemistry. Member of ACS.
	**Madelyn Friel –** Randolph College **Hometown**: Suffolk, Virginia **Degree**: BS in Chemistry, May 2025 **Honors**: First-Year Chemistry Student Award. Dean's List All Semesters. Member of Omicron Delta Kappa, Iota Sigma Pi, and Chi Alpha Sigma.
	**Keaton Willard –** Roanoke College **Hometown**: Walnut Cove, North Carolina **Degree**: BS in Chemistry and Physics, May 2025 **Honors**: Roanoke College Summer Research Scholar. Bondurant Student Affiliate Award, Roanoke College President's List, Phi Beta Kappa, Sigma Pi Sigma, Pi Mu Epsilon, and Alpha Lambda Delta. Member of ACS and APS.

Howe Awardees 2025, continued.

	**Lara Jost –** Sweet Briar College **Hometown**: Würzburg, Germany **Degree**: BS in Chemistry and Mathematics, May 2025 **Honors**: Award for First-Year Excellence in Chemistry 2022, Alpha Lambda Delta Honors Society 2022 Athletics: Whiteman Scholar-Athlete Award 2024, NFHCA Scholar of Distinction 2021-2023, Division III NFHCA. Nancy Godwin Baldwin '57 Scholar 2024, Dean's List 2021-2024, Iota Sigma Pi, Omicron Delta Kappa, Emilie Watts McVea Scholar, 2022-2023, Piepho National Academic Squad 2021-2023, ODAC All-Academic Team 2023, CSAC All-Academic Team 2021-2022.
	**Caleb Staples –** Virginia Military Institute **Hometown**: Colorado Springs, Colorado **Degree**: BS in Chemistry, May 2025 **Honors**: Ralph Bowen Linville Award, 2022; ACS Analytical Chemistry Award, 2024. Dean's List All Semesters. Member of Gamma Sigma Epsilon.
	**Zohal Zekrya –** Virginia Tech Department of Biochemistry **Hometown**: Ashburn, Virginia **Degree**: BS in Biochemistry, May 2025 **Honors**: Biochemistry Peer Mentor and Tutor (3 years), Living Learning Community-Mozaiko, Spanish House Peer Mentor (3 years), TA for BCHM 4124 in Spring 2025. Admin and Events Committee of the Council of International Student Organizations (Fall 2024 and Spring 2025), Dean's List in the College of Agriculture and Life Sciences (2022-2024). INOVA Beatty Liver and Obesity Research Internship (summer 2023 and 2024). Biosafety 1 and CITI COI Certified.

Howe Awardees 2025, continued.

	**Stephen Argauer –** Virginia Tech Department of Chemistry **Hometown**: Vienna, Virginia **Degree**: BS in Chemistry, May 2025 **Honors**: Virginia Tech College of Science Outstanding Senior 2025, VT Corps of Cadets (VTCC) Battalion Executive Officer 2025, VTCC Training Group Commander 2024, VTCC Regimental Academics Officer 2024; Astronaut Scholarship (national) 2024, Phi Beta Kappa 2024, Air and Space Forces Association Lovelace Memorial Award 2023, United States Air Force Cadet of the Year (national) 2023, Julius Bilisoly Scholarship VT Chem 2024, AFROTC Exchange Scholar to USAFA 2023, Warrior Spirit Award VTCC 2023, AFROTC Physical Fitness Award 2023, Karen Brewer Memorial Award VT Chem 2022, Academic Leadership Scholarship VTCC 2022, Emerging Leaders Scholarship VTCC 2021, Eagle Scout 2017.
	**Demetri Patrinos –** Washington and Lee University **Hometown**: Bethel Park, Pennsylvania **Degree**: BS in Biochemistry, May 2025 **Honors**: Johnson Scholarship, Goldwater Scholarship, ACS Division of Analytical Chemistry Undergraduate Award, Phi Beta Kappa, Lambda Chi Alpha.

VBRS Officer Election Results for 2025

Voting has concluded and we now announce the Officers (Executive Council) of VBRS for 2025.

- Chair-Elect – The Executive Council will appoint a Chair-Elect for 2025.
- Secretary – Paul Deck (Virginia Tech)
- Treasurer – Owen Lofthus (Virginia Western CC)
- Councilor – Gary Hollis (Roanoke College)
- Alternate Councilor – Jason Crumpton (University of Lynchburg)

VBRS-ACS Outstanding High School Chemistry Teacher Award 2025

Tammie S. Saunders is a dedicated and passionate educator with over two decades of experience in teaching and inspiring students in the sciences. Currently, she teaches MYP Chemistry at Galileo Magnet High School in Danville, Virginia.

Throughout her career, Tammie has taught a diverse range of subjects including Honors Chemistry, IB Chemistry, Physics, Earth Science, Environmental Science, Physical Science, Anatomy and Physiology, and Advanced Biology. Her career is rooted in a strong academic foundation, having earned an Associate of Science degree from Ferrum College and a Bachelor of Science in Chemistry with an endorsement in Secondary Science from Longwood College. She is currently pursuing a Master of Science in School Counseling at Liberty University.

Tammie's journey into education was shaped by a lifelong fascination with science and a desire to make complex concepts accessible and engaging for young minds. Growing up in a small town, she was inspired by the dedication of her own Chemistry teacher, who nurtured her curiosity and modeled the transformative power of education. As a first-gen college student, Tammie's achievements stand as a testament to her perseverance and the guidance of mentors who recognized her potential. These experiences planted the seed for her career, as she resolved to give back to her community by becoming the kind of teacher who empowers students to pursue their dreams.

Throughout her career, Tammie has remained committed to fostering a love for science in her students. She has consistently sought innovative teaching methods to make science relatable, practical, and inspiring. By integrating technology, hands-on experiments, and interdisciplinary approaches, she ensures that her classroom is a dynamic space where students are encouraged to think critically and solve problems. Her work extends beyond the classroom; she is currently the Swim Coach and has coached Football Sideline and Competition Cheer for 8 years.

Among her most notable accomplishments is the development of an IB Chemistry program and being the first IB Chemistry teacher at her current school, enabling students to engage with rigorous coursework and prepare for success in higher education. In addition, Tammie's commitment to professional growth has led her to participate in numerous professional development initiatives to enhance her teaching practice.

One of Tammie's greatest contributions to education lies in her ability to connect with her students on a personal level, understanding their unique strengths and challenges. Her approachable demeanor and dedication to student success have earned her the trust and respect of both her students and their families. Tammie's efforts to build a supportive and inclusive classroom environment have made her a favorite among students, many of whom credit her with sparking their interest in pursuing careers in STEM.

In addition to her teaching responsibilities, Tammie is deeply involved in her community. She volunteers with the Halifax County Cancer Association which provides education, and support for cancer patients in Halifax County.

Tammie's contributions to education have been recognized with numerous accolades, including Teacher of the Year award and nominations for excellence in education. However, she considers her greatest rewards to be the success stories of her students, who continue to make a difference in their communities and beyond. She remains passionate about her work and is driven by the knowledge that her efforts help shape the next generation of thinkers, innovators, and leaders.

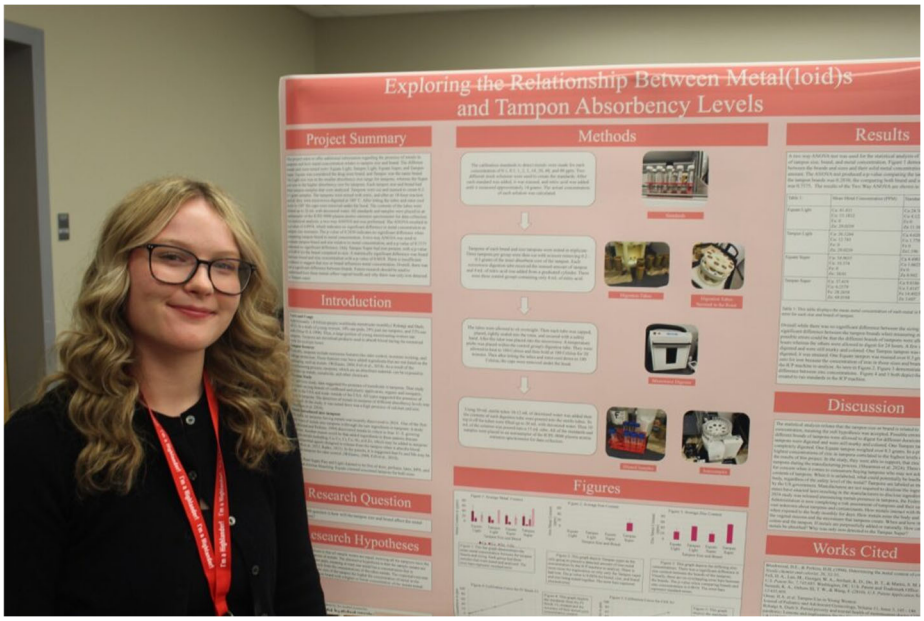
In pursuing a Master's in School Counseling, Tammie aims to broaden her impact by supporting students' academic, social, and emotional well-being. She envisions that her dual expertise in science education and counseling will enable her to provide students the diverse resources and encouragement they need to thrive.

Tammie S. Saunders embodies the essence of an educator who not only imparts knowledge but also inspires confidence, curiosity, and resilience. Her dedication to her students, her community, and her own professional growth serves as a powerful example of the transformative role educators play in shaping lives and building a brighter future.

VBRS-ACS Award at the 2025 Blue Ridge Highlands Regional Science Fair

Silas Phillips received the award in the Junior Division for his project entitled *Exploring Indicators of Cellular Respiration in Saccharomyces cerevisiae with Levulose, Dextrose, and Sucrose*. Silas is a student at Scott Memorial Middle School. His faculty sponsor is Lucas Phillips.

Natalie Tessar received the award in the Senior Division for her project entitled, *Exploring the Relationship Between Metalloids and Tampon Absorbency Sizes*. Laken is a student at Southwest Virginia Governor's School. Her faculty sponsor is Jared Brown.



Virginia Blue Ridge Section of the American Chemical Society

Undergraduate and High School Poster Submission Form

As part of the April 11, 2025, meeting at Radford University, the Virginia Blue Ridge Section of the American Chemical Society is sponsoring the 31st Annual Undergraduate/High School Poster Session. Note that poster boards will be provided.

If you have a student or students who will be participating, please submit the following information by email to Dr. Christine Hermann (chermann@radford.edu) by April 02, 2025. This is a firm deadline. No submissions will be accepted after this date. All students and faculty will receive email confirmation. If you did not get an email reply, then your submission was not received and you cannot present.

Name of Project _____

_____

Name(s) of Student(s):_____

Mark each student above with his or her class: Freshman (1), Sophomore (2), Junior (3), Senior (4)

Affiliation (name of school or institution): _____

Student(s) email address:_____

Advisor's Name: _____

Advisor's Mailing Address: _____

_____

Advisor's Telephone Number: _____

Advisor's Email Address: _____

48" by 36" poster board on a tripod or on a table will be provided. Please specify what you need.

_____ poster board with tripod _____ table needed

All poster presenters will be included in the list for the meal (heavy hors d'oeuvres will be served during the Social Hour, see below). Please list any other faculty, parents, friends, or other students that will be coming to the poster session as your guest(s). We need to get an accurate count for catering.

_____

_____

Meeting Schedule: 5:00 – 5:30 pm: Poster setup 5:30 – 6:45 pm: Social hour/poster session

7:00 – 7:15 pm: Awards 7:15 – 8:15 pm: Keynote presentation

The poster session will take place in the Main Street Lobby of Center for the Sciences. The awards ceremony and keynote presentation will take place in adjacent Room M73, Center for the Sciences.

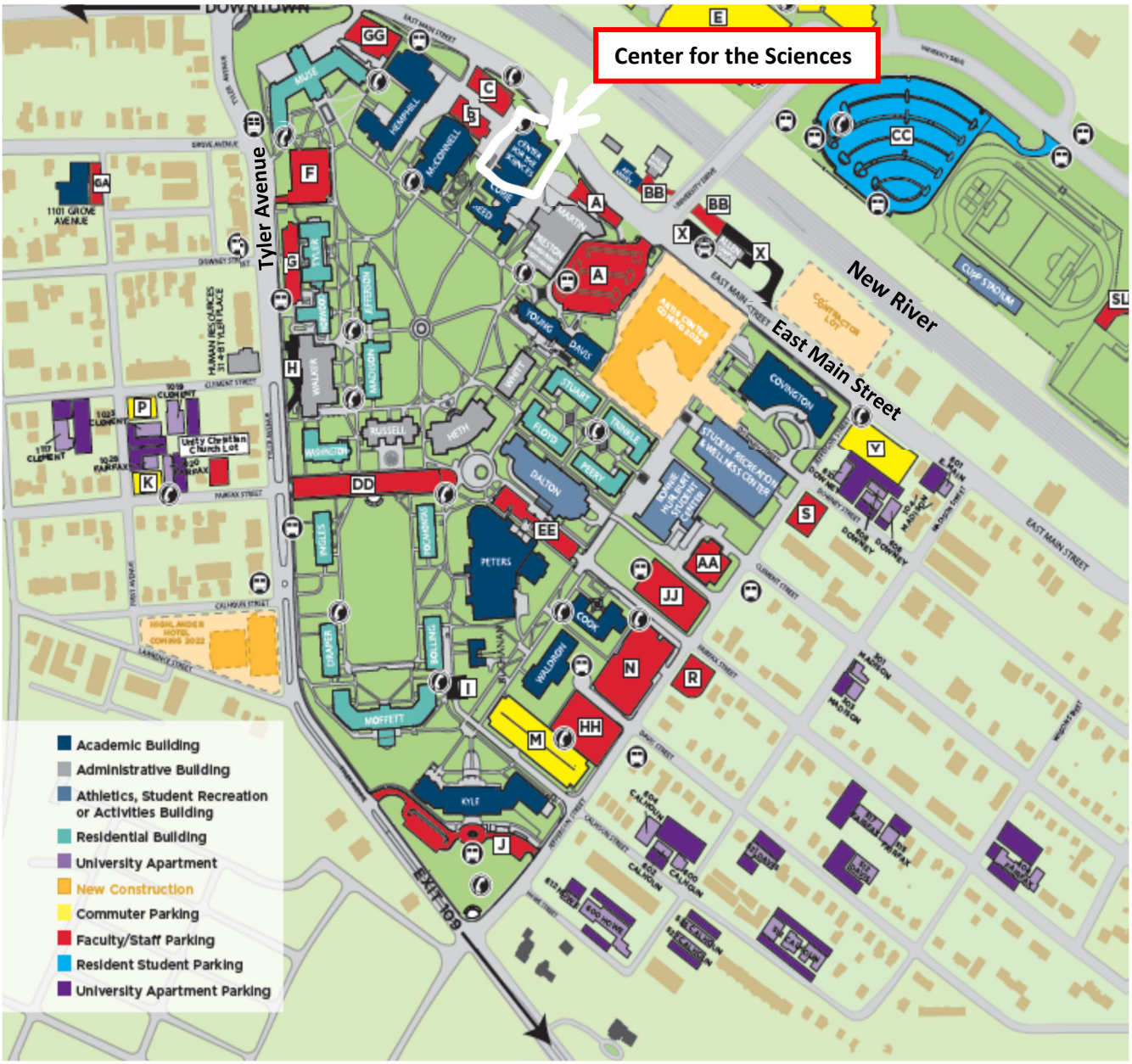
If you are scanning this form, please make sure the scan is legible.

Directions to Radford University

Directions: Take I-81 to Exit 109 and follow Route 177 (Tyler Ave) to Main Street. Make a right onto Main Street. Go into the first parking lot on the right in front of McConnell Library, and beside Center for the Sciences (white arrow). The poster session / social hour starts at 5:30 pm in the Center for the Sciences. The talk follows the poster session in Center for the Sciences Room M73, immediately adjacent to the poster area in the main lobby of the building.

The parking pass for the meeting is provided on the next page.

A campus map is here: https://www.radford.edu/_resources/_documents/campus-map.pdf



Radford University | Parking Services

American Chemical Society
Virginia Blue Ridge Section

April 11, 2025

Please display this permit on your dash.

Authorized by Parking Services Manager

Parking Permit is not valid for Parking on Yellow Lines or in Handicapped zones, without valid DMV HC Permit. Vehicles parked in the above mentioned areas will be subject to being ticketed and/or towed at the owner's expense.

Changes made to this parking pass are not authorized and will render it invalid. Misuse could result in loss of parking privileges.