

# CURRICULUM VITAE

## PAULA A. MAZZER

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## EDUCATION

Ph.D., Chemistry, Kent State University, Kent, OH, June 2002.

B.A., Biology with minor in History, University of Delaware, Newark, DE, May, 1991.

## PROFESSIONAL EXPERIENCE

2006 – Present. Assistant Professor, Department of Chemistry & Biochemistry, Old Dominion University; Norfolk, VA

2005 – 2006. Lecturer, Chemistry and Biochemistry, Department of Chemistry & Biochemistry, Old Dominion University; Norfolk, VA

2002 – 2005. Post-doctoral Researcher, Department of Chemistry, The Ohio State University; Columbus, OH

## RESEARCH INTERESTS

- Health effects of airborne particulate matter
- Transformation of airborne particulate matter during environmental transit
- Toxicological metabonomics/lipidomics

## HONORS AND FELLOWSHIPS

2011. ODU Shining Star Award, Old Dominion University, Norfolk, VA.

1998 – 1999. University Fellow, Kent State University, Kent, OH.

1998. Graduate Student Senate Outstanding Teaching Award, Kent State University, Kent, OH.

1991 – 1994. Maytag Fellow, University of Miami Rosenstiel School of Marine and Atmospheric Sciences, Miami, FL

1989. Undergraduate Summer Scholarship, University of Delaware, Newark, DE.

1987 – 1991. National Merit Scholarship, University of Delaware, Newark, DE.

## PROFESSIONAL SOCIETIES

American Chemical Society  
Society for Environmental Toxicology and Chemistry  
Society of Toxicology

## SCHOLARLY SERVICES

### *ACADEMIC COMMITTEES & DUTIES*

- 2009 – Present. Library faculty representative for chemical sciences, ODU.
- 2008 – Present. Advisor, Undergraduate ACS Student Affiliates, Dept. of Chemistry & Biochemistry, Old Dominion University.
- 2007 – Present. Graduate Studies Curriculum Subcommittee, Dept. of Chemistry & Biochemistry, ODU.
- 2007 – 2008. Organic Chemist Search Committee, Dept. of Chem. & Biochem., ODU.
- 2006 – Present. Graduate Studies Committee, Dept. of Chemistry & Biochemistry, ODU.

### *REVIEWER DUTIES*

#### Journal Reviewer (last 5 years):

- Analytical Chemistry.

#### Proposal Reviewer (last 5 years):

- Old Dominion University College of Health Sciences Transdisciplinary Initial Project Support Program.
- US Civilian Research & Development Foundation Travel Fellowship Program.

### *PUBLICATIONS IN PEER-REVIEWED JOURNALS (\* indicates student advisee)*

- Mazzer, P.A.**; Maurmann, L; Bose, R.N. 2007. “Mechanisms of DNA damage and insight into mutations by chromium(VI) in the presence of glutathione.” *Journal of Inorganic Biochemistry*; **101**(1): 44-55.
- Briggs, M. K.; Desavis, E.; **Mazzer, P. A.**; Sunoj, R. B.; Hatcher, P. G. 2003. “A new approach to evaluating the extent of Michael adduct formation to PAH quinones: Tetramethylammonium hydroxide thermochemolysis with GC/MS” *Chemical Research in Toxicology*; **16**(11): 1484-1492.
- Cornwell, D. G.; Kim, S.; **Mazzer, P. A.**; Jones, K. A.; Hatcher, P. G. 2003 “Electrophile tocopheryl quinones in cytotoxicity, apoptosis, and mutagenesis: Thermochemolysis for the identification of thiol nucleophile adducts in histones and cells” *Lipids*; **38**(9): 973-979.
- Bose, R. N.; Moghaddas, S.; **Mazzer, P. M.**; Dudones, L. P.; Joudah, L.; and Stroup, D. 1999. Oxidative damage of DNA by chromium(V) complexes: Relative importance of base versus sugar oxidation. *Nucleic Acids Research*; **27**(10): 2219-2226.

### *MANUSCRIPTS SUBMITTED AND IN PREPARATION (\* indicates student advisee)*

- \*Willoughby, A.W., and Mazzer, P.A. Molecular characterization of water soluble oxidation products from airborne particulate matter. In preparation for *The Journal of Geophysical Research*.

\*Shaw, R.E.; \*Backstrom, M.D.; \*Ciceraro, C.; \*Rautiola, D.S.; Orians, J. W.; and Mazzer, P.A. Investigations into the chemical mechanism of action of a series of naphthoquinones. In preparation for *Chemical Research in Toxicology*.

Mazzer, P.A.; Turner, J.W.; Foster, J.N.; \*Willoughby, A.W.; and Hatcher, P.G. Formation of Napthaquinone adducts with Natural Organic Matter Isolated from Wetland Sediments. In preparation for *Environmental Science and Technology*.

### ***DISSERTATION***

2002. Mazzer, P. M. *DNA Damage by chromium carcinogens: Chromatographic, mass spectroscopic, and kinetic characterization*. Ph.D. Dissertation, Kent State University, Kent, OH. 123 pp.

### ***GRANTS AND AWARDS***

#### *Current Funding*

2008-2010. Jeffress Foundation. "A metabolic evaluation of the cytotoxic effects of diesel exhaust particles," \$20,000, 1 year, PI. Renewed for 1 year, \$10,000.

#### *Submitted/Pending Proposals*

#### *Past Funding*

2007. ODU Summer Research Fellowship Program. "Hydroquinone toxicity in murine lung macrophage cells: metabolic analysis via high-resolution mass spectrometry", \$7,543, 1 summer, PI.

#### *Unfunded*

2009. NIH Exploratory/Developmental Research Grant Program (R-21). "Effect of airborne environmental pollutants on cell viability and amyloid fibril formation." \$405,000, 2 years, PI with L. Greene (50% each).

2009. Virginia Center on Aging, Alzheimer's and Related Diseases Research Award Fund. "Investigating a potential environmental risk factor for Alzheimer's disease: The effect of urban-industrial air particulates on brain cells," \$37,000, 1 year, PI.

2008. NIH, Academic Research Enhancement Program. "Systematic Analysis Of The Primary Chemical Mechanism Of Cytotoxicity Of A Series Of One-, Two-, And Three-Ring Quinones", \$198,248, 2 years, PI.

2007. NIH, Innovative Approaches to Remediation of Recalcitrant Hazardous Substances in Sediments (R01). "A novel approach to remediation of both PAHs and toxic metals in contaminated sediments using chemically-modified natural biopolymers." \$827,632, 3 years, Co-PI.

2006. Virginia Department of Education, Mathematics and Science Partnership Grant. "Rising above the gathering storm: A university and public school partnership for excellence in mathematics and science education (EMSE)." \$264,949. 1 year, Co-PI.

### ***INVITED TALKS***

- Mazzer, P.A. 2009. Oxidized Particulate Matter from the Urban Atmosphere. Department of Chemistry, Randolph Macon College; Ashland, VA.
- Mazzer, P.A. 2009. The Chemistry of Particulate Air Pollution and Implications to Human Health. Mole Day Speaker Series, Thomas Nelson Community College, Hampton, VA.
- Mazzer, P.A. 2009. Oxidized Particulate Matter from the Urban Atmosphere. Department of Chemistry, Virginia Commonwealth University; Richmond, VA.
- Mazzer, P.A. 2009. Airborne Particulate Matter: Characterization and Correlation to Toxicity. Harold Cones Seminar Series, Department of Biology, Chemistry, and Environmental Science, Christopher Newport University; Newport News, VA.
- Mazzer, P.A. 2008. Airborne Particulate Matter: Characterization of WSOC and Correlation to Toxicity. Department of Chemistry, Roanoke College; Roanoke, VA.
- Mazzer, P.A. 2008. Health Effects of Airborne Particulate Matter, Volume One. School of Natural Sciences and Math, Ferrum College; Ferrum, VA.
- Mazzer, P.A. 2007. Health Effects of Airborne Particulate Matter: Detection of Protein Metabolite Adducts. Department of Chemistry, George Mason University, Fairfax, VA.
- Mazzer, P.A. 2007. Health Effects of Airborne Particulate Matter, Volume One: Detection of Protein Metabolite Adducts. Department of Chemistry, Kent State University, Kent, OH.

### ***MEETING ABSTRACTS (\* indicates student advisee)***

- \*Yu, Liang, Jeng, H. A., Mazzer, P., and Swanson, R.J. "Polycyclic aromatic hydrocarbons in particulate matter alter lipid profile in human endothelial cells." 50th National Society of Toxicology Annual Meeting; Washington, D.C., March 6-10, 2011.
- \*Willoughby, A.S., Mazzer, P.A. "Characterization of the organic components of particulate matter in the urban atmosphere using Fourier transform ion cyclotron resonance mass spectrometry." 236th National ACS Meeting; Philadelphia, PA. Aug 17-21, 2008.
- \*Shaw, R. E.; \*Backstrom, M. D.; and Mazzer, P. A. "Systematic study of the potential arylating capabilities of a series of benzoquinones, naphthoquinones, and anthraquinones." 236th National ACS Meeting; Philadelphia, PA. August 17-21, 2008.
- Mazzer, P. A., Turner, J. W., Foster, J. N., and Hatcher, P. G. "PAH quinone adduction to thiol and amine groups in sedimentary NOM." EMSI/North Central NOM Workshop. Columbus, Ohio. June 15-17, 2005.
- Mazzer, P. A., and McComb, S. "Science Fair, pschaw! Cutting edge science on a shoestring." Science Education Council of Ohio, Annual Conference. February 10-12, 2005.
- Mazzer, P. A.; Stroup, D.; and Bose, R. N. "Roles of oxo- and peroxo-chromium(V) complexes in oxidative DNA damage." 222<sup>nd</sup> National ACS Meeting; Chicago, IL. August 26-30, 2001.

Bose, R. N.; Stroup, D.; Mazzer, P.; Moghaddas, S.; and Joudah, L. "Oxidative DNA damage by chromium carcinogens." Thirty-first Annual Central Region ACS Meeting; Columbus, OH. 1999.

Mazzer, P.A.; Harichand, S.; and Bose, R. N. "Redox reaction between Cr(V) and Mn(II): Implications for Cr(IV) in DNA oxidation." Thirtieth Annual Central Region ACS Meeting; Cleveland, OH. 1998.

### ***STUDENT POSTERS (\*indicates student advisee)***

\*Turner, J. and Mazzer, P. "Molecular characterization of lab-generated biomass-burning products using ultrahigh resolution mass spectrometry." 3<sup>rd</sup> Annual Gathering of Local Chemistry Departments and Undergraduate Poster Session; Norfolk, VA, 2010.

\*Orians, J., \*Shaw, R., and Mazzer, P. "Toxicity of quinones on leukemia cells." 3<sup>rd</sup> Annual Gathering of Local Chemistry Departments and Undergraduate Poster Session; Norfolk, VA, 2010.

\*Moorefield, C., and Mazzer, P. "Caspase 3 induction by staurosporine and spermine-NONO-ate." 3<sup>rd</sup> Annual Gathering of Local Chemistry Departments and Undergraduate Poster Session; Norfolk, VA, 2010.

\*McLaughlin, J.N., \*Mollica, P., and Mazzer, P. "Determining probably cell death mechanism due to quinone toxicity via lipid extraction and FTICR-MS analysis." 3<sup>rd</sup> Annual Gathering of Local Chemistry Departments and Undergraduate Poster Session; Norfolk, VA, 2010.

\*Backstrom, M., \*Mohan, D., and Mazzer, P. "FTICR-MS lipid analysis of necrosis and apoptosis in macrophage cells." 2<sup>nd</sup> Annual Gathering of Local Chemistry Departments and Undergraduate Poster Session; Norfolk, VA, 2009.

\*McLaughlin, J.N. and Mazzer, P. "Cytotoxic effects on macrophage cells when exposed to quinone series." 2<sup>nd</sup> Annual Gathering of Local Chemistry Departments and Undergraduate Poster Session; Norfolk, VA, 2009.

\*Mohan, D. and Mazzer, P. "Cytotoxic effects of exposure to diesel exhaust particulates on macrophage cells and brain cells." 1<sup>st</sup> Annual Gathering of Local Chemistry Departments and Undergraduate Poster Session; Norfolk, VA, 2009.

### ***COURSES TAUGHT***

*Department of Chemistry and Biochemistry, Old Dominion University*

Spring 2011. Introductory Biochemistry (3 credits, graduate/undergraduate, 43 students)

Spring 2011. Essentials of Toxicology (3 credits, graduate/undergraduate, 23 students)

Fall 2010. Introductory Biochemistry (3 credits, graduate/undergraduate, 100 students)

Spring 2010. Introductory Biochemistry (3 credits, graduate/undergraduate, 40 students)

Fall 2009. Introductory Biochemistry (3 credits, graduate/undergraduate, 84 students)

Fall 2008. Introductory Biochemistry (3 credits, graduate/undergraduate, 73 students)

Fall 2008. Advanced Analytical Chemistry, instructor and coordinator (3 credits, team taught, graduate, 8 students)

Spring, 2008. Essentials of Toxicology (3 credits, graduate/undergraduate, 10 students)

Fall, 2007. Introductory Biochemistry (3 credits, graduate/undergraduate, 104 students)

Spring, 2007. Frontiers in Chemistry—Environmental Toxicology (3 credits, graduate, 10 students)

Fall, 2006. Introductory Biochemistry (3 credits, graduate/undergraduate, 72 students)

Summer, 2006. College Chemistry I, instructor and lab coordinator (4 credits, undergraduate, 47 students).

Spring, 2006. Organic Chemistry Laboratory II (1 credit, undergraduate, 21 students)

Spring, 2006. Fundamentals of Chemistry I, instructor and lab coordinator (4 credits, undergraduate, 208 students)

Fall, 2005. Introductory Biochemistry (3 credits, graduate/undergraduate, 69 students)

*Department of Education, The Ohio State University*

Summer, 2005. Experimental Environmental Science (4 credits, graduate, 2 students)

Summer, 2005. EMSI Teacher Workshop I & II (3 credits, graduate, 26 students)

*Department of Chemistry, Kent State University*

Fall, 1999. Physiological Chemistry (4 credits, undergraduate)

***STUDENTS MENTORED***

*Major Advisor*

2009 – Present. Waggoner, Derek. Ph.D. student.

2007 – 2010. Shaw, Rebecca. M.S., 2010  
→ 2010-Present: Research Scientist II, AMRI Global, Bothell, WA.

2007 – 2010. Priest, Amanda. M.S., 2010  
→ College of Sciences, Outstanding Teaching Assistant Award, 2007.  
→ CIBA Scholar, 2009-2010, \$10,000.  
→ Old Dominion University, Outstanding Teaching Assistant Award, 2010.  
→ 2010-Present: PhD student, Department of Chemistry and Biochemistry, Old Dominion University.

2007 – 2009. Richards, Laura. M.S. student.  
→ 2009-Present, PhD student, Department of Earth, Ocean, and Atmospheric Sciences, ODU.

2007 – 2009. Larkin, Christopher. M.S. student.  
→ 2010-Present, NIR Applications Scientist, Bruker Optics, The Woodlands, TX.

2010 – Present. Moorefield, Corinne, summer high school research intern.

2010 – Present. Turner, Jordan, summer high school research intern.  
→ Entered her research in the 2010 Siemens Foundation Competition.

2010 – Present. Goodwin, Jeffrey, Undergraduate research intern.

2010 – Present. Orians, Joseph, Undergraduate research intern.

2009 – Present. Mollica, Peter, Undergraduate research intern.

→ 2010-Summer Researcher, Jeffress Research Grant.  
2009 – 2010. Mohan, Devina, Undergraduate research intern.  
→ Honors College Research Grant Recipient, 2009. \$1000.  
→ Top Graduating Biochemistry Major, 2010.  
→ 2010-Present: Medical Program, Eastern Virginia Medical School.  
2008 – 2009. Waggoner, Derek. Undergraduate research intern.  
2008 – 2009. Rautiola, Davin. Undergraduate research intern.  
2008 – Present. McLaughlin, Jessica. Undergraduate research intern.  
2007 – Present. Backstrom, Michelle. Undergraduate research intern.  
2007. Covington, J. Daren. Undergraduate research intern.  
2006 – 2009. Ciceraro, Cecilia. Undergraduate research intern.

#### Student Committee Service (graduated)

*Department of Chemistry and Biochemistry, Old Dominion University*

2010. Marsh, Joshua, M.S.

2009. Kalaitzis, Joy, M.S.

*Department of Ocean, Earth, and Atmospheric Sciences, Old Dominion University*

2010. Matthews, Joy, Ph.D.

2010. Morton, Peter, Ph.D.

*Department of Biological Sciences*

2010. Van Vlyman, Christopher, MS

#### Current Committee Assignments

*Biomedical Sciences PhD Program, Old Dominion University*

Agatha Munyani, Ph.D. Student

Liang Yu, Ph.D. Student

*Department of Chemistry and Biochemistry, Old Dominion University*

Jonathon Avis, M.S. Student

Hongmei Chen, Ph.D. Candidate

Rajaa Mesfioui, Ph.D. Candidate

Wassim Obeid, Ph.D. Student

Nardos Sori, Ph.D. Candidate

Sonia Antony, Ph.D. Candidate

*Department of Biological Sciences*

Kathy Hill-Walliser, Ph.D. Student

#### **ACADEMIC ADVISORS**

Ph.D. Dr. Rathindra N. Bose, Dean, College of Sciences, Northern Illinois University.

Post-Doctoral. Dr. Patrick G. Hatcher, Batten Endowed Chair of Physical Sciences,  
Department of Chemistry & Biochemistry, Old Dominion University.

#### **VOLUNTEER & OUTREACH ACTIVITIES**

2010 – Present. Research mentor, Ocean Lakes High School Senior Research Program. Ocean Lakes High School, Virginia Beach, VA.

2010 – Present. Volunteer, National Lab Day Project. [www.nationallabday.org](http://www.nationallabday.org).

- 2009, 2010. Peer reviewer for ACS Student Affiliates Chapter Reports. American Chemical Society; Washington, D.C.
2009. Judge, chemistry division. 66<sup>th</sup> Joint Annual Meeting of Beta Kappa Chi (BKX) and The National Institute of Science (NIS). Jointly hosted by Norfolk State University and Hampton University, Norfolk, VA.
2009. Speaker and Coordinator, Scout Day, Boy Scouts of the USA. Hosted by Old Dominion University, Norfolk, VA.
2008. Speaker and Coordinator, Scout Day, Boy Scouts of the USA. Hosted by Old Dominion University, Norfolk, VA.
2008. Judge, St. Gregory the Great School Science Fair, Virginia Beach, VA.
2007. Teleconference scientist, Portage Path Elementary School, Akron, OH. In cooperation with the Research Center for Educational Technology, Kent State University, Kent, OH.
2006. Speaker and Coordinator, Scout Day 2006, Girl Scouts of the USA. Hosted by Old Dominion University, Norfolk, VA.
- 2002 – Present. Scientific consultant, National Inventors Hall of Fame Annual Collegiate Inventors Competition Project, C.S. Slaybaugh & Assoc., Hartville, OH,
- 2002 – 2004. Research coordinator, EMSI Student Scientists Program, The Ohio State University, Columbus, OH.
2002. Destination Discovery, Girl Scouts of the USA. Hosted by The Ohio State University, Columbus, OH.
2002. Ohio Science Olympiad Volunteer, The Ohio State University, Columbus, OH.