TAVLEEN KOCHAR

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EDUCATION

Ph.D.: Chemistry Expected in Spring 2021
University of North Carolina At Chapel Hill - *Chapel Hill, NC*
Emphasis in Analytical Chemistry

Bachelor of Science: Biochemistry and Molecular Biology Spring 2015
University of Redlands - *Redlands, CA*
Graduated with Honors *Summa Cum Laude (*GPA: 3.95)

ACADEMIC HONORS AND AWARDS

- Recipient of the American Society for Mass Spectrometry Small Conference Travel (2019)
- Recipient of the Matthew Stuart Morrison Summer Fellowship (2016)
- Recipient of the ACS Division of Analytical Chemistry Undergraduate Award (2015)
- Recipient of the Tutor of the Year Award (2014 – 2015)
- Recipient of the Robert D. Engel Award for Science and Mathematics (2015)
- Member of Phi Beta Kappa and Phi Sigma (2015)
- Recipient of the Bourns Foundation Scholarship and Edison Scholarship in the Sciences (2014 – 2015)
- Recipient of the Presidential Scholarship and Achievement Award (2011 – 2015)
- Dean's List for Academic Success (2011 – 2015)
- Scholar-Athlete (2011 – 2012)

PROFESSIONAL SUMMARY

Passionate Educator and Researcher with valuable experience in teaching and lab work in the field of chemistry. More than 8 years of college-level teaching covering myriad of subjects. Highly skilled at motivating students through positive encouragement and reinforcement of concepts via interactive classroom instruction and observation. Fosters higher-level learning both in and out of lab through effective pedagogical approaches with emphasis on analysis, problem-solving, and critical thinking.

SKILLS

Teaching

- Group and individual instruction
- Student-centered learning
- Classroom technology
- Student engagement
- Classroom management
- Lesson planning

Research

- Instrument troubleshooting
- Method development
- Quantitative and qualitative analysis
- Technical writing
- Experiment design
- Equipment management

TEACHING & MENTORING EXPERIENCE

Ad-Hoc Professor – General Chemistry
01/2020 to 12/2020

University Of North Carolina - Chapel Hill – *Chapel Hill, NC*

- Educated as instructor-of-record for general chemistry class with over 200 students
- Implemented active learning techniques to engage students, increasing classroom collaboration and peer support
- Assisted students of all ability levels to develop life-long learning skills and good study habits
- Created and developed lesson plans according to students' academic needs, including both group and individual work.
- Facilitated transition of chemistry course to remote teaching in March, 2020
- Utilized different technologies such as iClicker, Zoom, Poll Everywhere, and Sakai to engage students in class instruction and diversify approaches.

Graduate Teaching Assistant
08/2016 to 05/2019

University of North Carolina at Chapel Hill – *Chapel Hill, NC*

Graduate teaching assistant at UNC for the following labs:

- Lower-Division Undergraduate-Level Analytical Chemistry Lab (Head TA – Summer 2018)
- Graduate-Level Electronics Lab (Head TA – Fall 2018)
- Upper-Division Undergraduate-Level Instrumentation Lab (Head TA – Spring 2019)
- Head TA for Undergraduate Chemistry Labs (Spring 2019)

Private Chemistry Tutor
09/2015 to 05/2016

Varsity Tutors – *Los Angeles, CA*

- Planned lessons for allotted time to strengthen weak subjects and build skills on stronger ones.
- Tracked learning progress in order to identify opportunities to enhance tutoring methods and help students achieve learning goals.
- Motivated students towards learning and studying to build self-confidence and reduce testing anxiety.

Subject Tutor
09/2012 to 04/2015

University of Redlands Academic Success Center – *Redlands, CA*

- Certified as a CRLA Level 1 Tutor
- Tutored university students in general chemistry, organic chemistry, analytical chemistry, molecular genetics, and calculus
- Explained topics in a variety of ways to cater to different learning styles
- Strengthened students' independence and confidence
- Named Tutor of the Year by the University of Redlands: 2014 – 2015

Research Experience

Ph.D. Candidate
06/2016 to Current

University of North Carolina - Chapel Hill – *Chapel Hill, NC*

- Develop and characterize ambient-analysis mass spectrometry techniques for improved analyte detection
- Install, maintain, and operate commercial ion trap mass spectrometers, including troubleshooting, modification, and user training
- Design research projects and provide guidance and mentorship to undergraduate students on conducting their own research.

Undergraduate Research Student
01/2014 to 04/2015

University of Redlands – *Redlands, CA*

- Led a new research project examining effects of ozone on compounds in epicuticular waxes in plant leaves
- Mentored students in lab to provide better insight into experimental design
- Undergraduate research presented at various national and international conferences.

Undergraduate Researcher
06/2014 to 08/2014

Jacobs University Bremen – *Bremen, Germany*

- Facilitated research in synthesizing and characterizing new compounds of boron clusters that could be used for boron-neutron capture therapy as a cancer treatment
- Developed top-level skills in collaboration, interpersonal communication and writing as result of hands-on work and training.

Publications

Kochar, T.K.; Conroy, C.L.; Ogorchock, M.R.; Glish, G.L. A Comparison of Electrospray Ionization (ESI), nano-Electrospray Ionization (nESI), and Paper Spray Ionization for the Analysis of Polyfluoroalkyl Substances (PFAS). **2021**. Manuscript in Preparation.

Kochar, T.K.; Ogorchock, M.R.; Glish, G.L. In-Situ Derivatization of Harmful Carbonyl Compounds in E-Cigarette Liquids During Nano-Electrospray Ionization Mass Spectrometry. **2021**. Manuscript in Preparation.

Winters, B. R.; **Kochar, T. K.**; Clapp, P. W.; Jaspers, I.; Madden, M. C. Impact of E-Cigarette Liquid Flavoring Agents on Activity of Microsomal Recombinant CYP2A6, the Primary Nicotine-Metabolizing Enzyme. *Chem. Res. Toxicol.* **2020**, *33* (7), 1689–1697. https://doi.org/10.1021/acs.chemrestox.9b00514.

Sassano, M. F.; Davis, E. S.; Keating, J. E.; Zorn, B. T.; **Kochar, T. K.**; Wolfgang, M. C.; Glish, G. L.; Tarran, R. Evaluation of E-Liquid Toxicity Using an Open-Source High-Throughput Screening Assay. *PLoS Biol.* **2018**, *16* (3). https://doi.org/10.1371/journal.pbio.2003904.

PRESENTATIONS

Longin, T., Ramirez, B., Schmidt, J., Navarro, V.H., Romero, B., Smith, C., **Kochar, T.**, Soulsby, D. Quantification of the Product of the Direct Reaction Between Ozone and Oleanolic Acid in Cuticular Waxes of Grapes Under Ambient Conditions. Poster presented at American Geophysical Union Fall Meeting ; **2020**, December 1-17; Online.

Alvarez, E., **Kochar, T.K.**, Keating, J.E., Chai, S., Vincent, B.G., Hunsucker, S.A., Armistead, P.M., Glish, G.L. Utilizing Differential Ion Mobility– Mass Spectrometry for Improved Immunopeptide Detection. Poster presented at 68th ASMS Conference of Mass Spectrometry and Allied Topics; **2020**, June 1-12; Reboot Online

Longin T.L., Navarro V.H., Romero, B., Smith, C. Rogoff, T., **Kochar, T.**, Soulsby, D.. Evidence of Direct Reaction between Ozone and Oleanolic Acid in Plant Cuticular Waxes under Laboratory and Ambient Conditions. Poster presented at 258th American Chemical Society National Meeting and Exposition; **2019**, August 25-29; San Diego, CA.

Kochar T.K., Ogorchock, M.R., Glish, G.L. A Comparison of Electrospray Ionization (ESI) and Paper Spray (PS) Ionization for the Analysis of Polyfluoroalkyl Substances (PFAS). Poster presented at 67th ASMS Conference on Mass Spectrometry and Allied Topics; **2019**, June 3-7; Atlanta, GA.

Kochar T.K., Ogorchock, M.R., Glish, G.L. In-Situ Derivatization of Harmful Carbonyl Compounds in E-Cigarette Liquids During Nano-Electrospray Ionization Mass Spectrometry. Invited speaker at Triangle Area Mass Spectrometry Discussion Group Meeting; **2019**, May 15; Durham, NC.

Longin T.L., Navarro V.H., Romero, B., Smith, C. Rogoff, T., **Kochar, T.**, Soulsby, D. Evidence of the Direct Reaction Between Ozone and Molecular Components in Epicuticular Waxes of Olive Leaves and Grape Berry Skins. Poster presented at 100th American Geophysical Union Fall Meeting ; **2018**, December 10-14; Washington, D.C.

Ogorchock M.R., **Kochar T.K.**, Glish G.L. In-Situ Derivatization of Flavor Additives in E-Cigarette Liquids During Nano-Electrospray Ionization Mass Spectrometry Poster presented at Eastern Analytical Symposium and Exhibition; **2018**, November 12-14; Princeton, NJ.

Ogorchock M.R., **Kochar T.K.**, Glish G.L. A Kinetic Study of In-Situ Derivatization Reactions in the Microdroplet via Nano-Electrospray Ionization Mass Spectrometry. Poster presented at Triangle Area Mass Spectrometry Discussion Group; **2018**, September 19; Durham, NC.

Kochar T.K., Glish G.L. Detection of Harmful Carbonyl Compounds in E-Cigarette Liquids via In-Situ Derivatization Nano-Electrospray Ionization Mass Spectrometry. Poster presented at 65th ASMS Conference on Mass Spectrometry and Allied Topics; **2017**, June 4-8; Indianapolis, IN.

Smith C., Riches M., **Kochar T.**, Soulsby D.P., Longin T.L. Effects of Ozone on Representative Molecular Components in Epicuticular Waxes on Leaves: Oleanolic and Ferulic Acid. Poster presented at 253rd American Chemical Society National Meeting and Exposition; **2017**, April 2-6; San Francisco, CA.

Rogoff T., Telfer-Radzat A., **Kochar T.**, Soulsby D.P., Longin T.L. Effects of Ozone on Resveratrol and Quercetin: Phytochemicals in Grape Berry Skins. Poster presented at 253rd American Chemical Society National Meeting and Exposition; **2017**, April 2-6; San Francisco, CA.

Riches M., **Kochar T.**, Telfer-Radzat A., Soulsby D.P., Longin T.L. Effects of Ozone of Standards Representing Molecular Components of Epicuticular Waxes in Plant Leaves. Poster presented at 251st American Chemical Society National Meeting and Exposition; **2016**, March 13-17; San Diego, CA.