

## Curriculum Vitae

**Susan Arnold**

### PERSONAL DATA

Division of Environmental Health Sciences, School of Public Health,  
 University of Minnesota  
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### EDUCATION AND TRAINING

PhD, University of Minnesota. Industrial Hygiene/Environmental Health Sciences Advisor: Gurumurthy Ramachandran	2015
MSOH, University of Ohio Toledo, Ohio. Industrial Hygiene	2005
BS, University of Guelph, Guelph Canada. Toxicology	1987

### PROFESSIONAL EXPERIENCE

**Director**, Exposure Science and Sustainability Institute (ESSI) University of Minnesota School of Public Health, 2014 – Present

**Deputy Director**, University of Minnesota School of Public Health Midwest, Education and Research Center for Occupational Health and Safety (MCOHS) Education and Research Center, 2021 – Present

**Director**, Outreach, University of Minnesota School of Public Health Midwest, Education and Research Center for Occupational Health and Safety (MCOHS) Education and Research Center, February 2023 - Present

**Associate Professor with Tenure**, University of Minnesota School of Public Health Division of Environmental Health Sciences, 2021 – Present

**Assistant Professor, Tenure Track** University of Minnesota School of Public Health Division of Environmental Health Sciences, 2015 – 2021

**Graduate Faculty Member**, University of Minnesota School of Public Health Health Equity Minor 2019- Present

**Instructor**, University of Minnesota School of Public Health

Division of Environmental Health Sciences, 2015

**Graduate Research Assistant**, University of Minnesota School of Public Health 2015  
Division of Environmental Health Sciences, 2014 - 2015

### **Other Professional Positions**

**Principal**, EHC, LLC, Roswell, GA, 2002 - 2015

**Senior Industrial Hygienist**, Environmental Health & Safety, Inc. Midland, MI, 2000 - 2002

**Corporate Industrial Hygienist - Product Safety Industrial Hygienist** Dow Corning Corporation 1996 - 2000

**Principal and Consultant** Arnold Consulting Services, Inc. Sarnia, Ontario, Canada 1990 - 1996

**Toxicologist and Chartered Chemist**, Sarnia General Hospital, Sarnia, Ontario, Canada 1989 – 1992

### **PROFESSIONAL CERTIFICATION**

Certified Industrial Hygienist (CIH), American Board of Industrial Hygiene, 1996 – Present  
Certification Number 7143.

### **PROFESSIONAL ACTIVITIES**

Member, AIHA Upper Midwest Local Section. 2017 - Present

Diplomat, American Board of Industrial Hygiene 2016 - Present

Member, AIHA 1996 – Present (Fellow, 2014- present)

Member, International Society of Exposure Science 1996 - Present

Member, Workplace Health Without Borders 2016 – Present

Delta Omega Honorary Society - Psi Chapter 2016 - Present

### ***Program or Project Development***

**Deputy-Director, Midwest Educational and Research Center for Occupational Health and Safety**, 2021-present.

**Director, Exposure Science and Sustainability Institute**, Division of Environmental Health Sciences, University of Minnesota, 2014-Present.

**Director**, Outreach, University of Minnesota School of Public Health Midwest, Education and Research Center for Occupational Health and Safety (MCOHS) Education and Research Center, February 2023 - Present

### ***Consultations***

National Institute for Environmental Health Sciences (through Stewart Consulting Services). Exposure assessment and mathematical modeling relating to the Gulf Study of health effects among clean-up workers from the BP drilling rig explosion in the Gulf of Mexico. 2016-present

James Hardie Corporation. To evaluate factors associated with respirable silica generation when cutting fiber cement siding to inform best practice recommendations. 10/15-10/16

## EDITORIAL ACTIVITIES

### *Peer Review Activities*

*Ad-hoc* reviewer for articles submitted to *Journal of Occupational and Environmental Hygiene*, *Annals of Work Exposures and Health*, *Journal of Exposure Science and Environmental Epidemiology*, *PLOS ONE*, *PNAS Nexus*, *Transactions on Spatial Algorithms and Systems*, *ACS Chemical Health & Safety*, *International Journal of Environmental Research and Public Health*

### *Editorial Board Membership*

Editorial Board Member, *Journal of Occupational and Environmental Hygiene*, 2017-present.  
 Editorial Board Member, *Frontiers in Public Health*, 2022-present.

## HONORS AND RECOGNITION

### External Sources

Delta Omega Honorary Society-Phi Chapter, 2016  
 Fellow - AIHA, 2014

## PUBLICATIONS

*Student author indicated with underline.*

### *Peer-Reviewed Journal Articles*

1. Cao, Q., Kim, S.C., Ou, Q., Chung, H.Y., Chen, W., Durfee, W., **Arnold, S.**, Hillmyer, M.A., Griffin, L.A., Pui, D.Y.H. (2023). Filtration Performance and Fiber Shedding Behavior in Common Respirator and Face Mask Materials. *Aerosol Air Qual. Res.* 23, 220387. <https://doi.org/10.4209/aaqr.220387>
2. J. Sahmel, **S. Arnold**, G. Ramachandran (2023) Accuracy of professional judgments for dermal exposure assessment using substance specific deterministic models *Journal of Occupational and Environmental Hygiene*, <https://doi.org/10.1080/15459624.2023.2173365>
3. **Arnold S**, Jeronimo M, Astrakianakis G, et al. Developing wipe sampling strategy guidance for assessing environmental contamination of antineoplastic drugs. *Journal of Oncology Pharmacy Practice*. August, 2022;0(0). doi:[10.1177/10781552221118535](https://doi.org/10.1177/10781552221118535)
4. Griffin, L., Yu, M., Cloet, A., **Arnold, S.**, Carlson, N., Hillmyer, M., Ou, Q., Pei, C., Cao, Q., Pui, D., Franklin, R., and Durfee, W. (March 2, 2022). "Protective Masks Utilizing Nonendangered Components." *ASME. J. Med. Devices*. March 2022; 16(1): 015001. <https://doi.org/10.1115/1.4053720>
5. **Susan Arnold**, Patricia A. Stewart , Gregory C. Pratt, Richard K. Kwok, Aaron Blair, Lawrence S. Engel, Dale P. Sandler and Mark R. Stenzel. (April, 2022) Estimation of Aerosol Concentrations of Oil Dispersants COREXIT™EC9527A and EC9500 During the *Deepwater Horizon* Oil Spill Response And Clean-Up Operations. *Annals of Work*

- Exposures and Health. DOI: [10.1093/annweh/wxab108](https://doi.org/10.1093/annweh/wxab108)
6. Stewart P, Groth C, Huynh T, et al., (April, 2022) Assessing Exposures from the Deepwater Horizon Oil Spill Response and Clean-up. *Ann Work Expo Health*. 2022 Apr 7;66(Supplement\_1):i3-i22. DOI: [10.1093/annweh/wxab107](https://doi.org/10.1093/annweh/wxab107)
  7. J. Sahmel, **S. Arnold**, G. Ramachandran. (2022) Influence of Repeated Contacts on the Transfer of Elemental Metallic Lead Between Compartments in an Integrated Conceptual Model for Dermal Exposure Assessment. *Journal of Toxicology and Environmental Health Part A*. <https://doi.org/10.1080/15287394.2021.1979435>
  8. Antti Joonas Koivisto, Michael Jayjock, Kaarle J. Hämeri, Markku Kulmala, Patrick Van Sprang, Mingzhou Yu, Brandon E. Boor, Tareq Hussein, Ismo K Koponen, Jakob Löndahl, Lidia Morawska, John C. Little, **Susan Arnold** (2021). Evaluating the Theoretical Background of STOFFENMANAGER<sup>®</sup> and the Advanced REACH Tool. *Annals of Work Exposures and Health*. <https://doi.org/10.1093/annweh/wxab057>
  9. Mark R. Stenzel, **Susan F. Arnold**, Gurumurthy Ramachandran, Richard Kwok, Dale P. Sandler, Lawrence Engel, Aaron Blair, Patricia Stewart. (April 2022) Estimation of airborne concentrations of oil dispersants COREXIT<sup>TM</sup> EC9527A and EC9500 during the Deepwater Horizon oil spill response and cleanup operations. *Annals of Work Exposures and Health*. <https://doi.org/10.1093/annweh/wxab056/6354617>
  10. Underwood J, Sturchio G, **Arnold S**. Patient Release and Instructions for Lutetium Dotatate Radiopharmaceutical Therapy. *Health Phys*. 2021 Aug 1;121(2):160-165. DOI:[10.1097/HP.0000000000001425](https://doi.org/10.1097/HP.0000000000001425)
  11. Jeronimo M, **Arnold S**, Astrakianakis G, Lyden G, Stewart Q, Petersen A, Chambers C, Malard Johnson D, Zimdars E, Kaup H, Davies HW. Spatial and Temporal Variability in Antineoplastic Drug Surface Contamination in Cancer Care Centers in Alberta and Minnesota. *Ann Work Expo Health*. 2021 Aug 5;65(7):760-774. DOI:[10.1093/annweh/wxab013](https://doi.org/10.1093/annweh/wxab013)
  12. Koivisto AJ, Spinazzè A, Verdonck F, Londahl J, Kopenan I, Verpaele S, Jayjock M, Hussein T, Ipinia J, **Arnold, S**, Irini Furxhi. Assessment of exposure determinants and exposure levels by using stationary concentration measurements and a probabilistic near-field/far-field exposure model [version 1; peer review: 2 approved]. *Open Res Europe* 2021, 1:72 <https://doi.org/10.12688/openreseurope.13752.1>
  13. Michael L. Benjamin, **Susan Arnold**, Marepelli Rao, Kermit Davis, Andrew Maierb, Jurate Virkutyte. (2021) “Ventilation and posture effects on inhalation exposures to volatile cleaning ingredients in a simulated domestic worker cleaning environment” *Indoor Air* <https://doi.org/10.1111/ina.12715>
  14. Gregory C. Pratt, Mark R. Stenzel, Richard K. Kwok, Caroline P. Groth, Sudipto Banerjee, **Susan F. Arnold**, Aaron Blair, Lawrence S. Engel, Dale P. Sandler and Patricia A. Stewart. (2022) “Modeled Air Pollution From In Situ Burning and Flaring of Oil and Gas Released Following the Deepwater Horizon Disaster” *Annals of Work Exposures and Health* [doi.org/10.1093/annweh/wxaa084](https://doi.org/10.1093/annweh/wxaa084)
  15. **Arnold, S.**, Ramachandran, G., Kaup, H., & Servadio, J. (2020). Estimating the time-varying generation rate of acetic acid from an all-purpose floor cleaner. *Journal of exposure science & environmental epidemiology*, 30(2), 374-382. DOI: [10.1038/s41370-019-0142-5](https://doi.org/10.1038/s41370-019-0142-5)
  16. Abdalla, N., S. Banerjee, G. Ramachandran, and **S. Arnold**. (2019) “Bayesian State Space Modeling of Physical Processes in Industrial Hygiene”. *Technometrics*.

- doi: [10.1080/00401706.2019.1630009](https://doi.org/10.1080/00401706.2019.1630009)
17. **Arnold, S., & Kaup, H. M.** (2019). Assessing variability of antineoplastic drugs handling practices in clinical settings. *Journal of occupational and environmental hygiene*, 16(12), 757-762. doi: [10.1080/15459624.2019.1667502](https://doi.org/10.1080/15459624.2019.1667502)
  18. Naumann BD, Arnold SF. Setting surface wipe limits for skin sensitizers. (2019) *Toxicol Ind Health*. Sep;35(9):614-625. doi: [10.1177/0748233719875365](https://doi.org/10.1177/0748233719875365). Epub 2019 Sep 23.
  19. Koivisto, A. J., Kling, K. I., Hänninen, O., Jayjock, M., Löndahl, J., Wierzbicka, A., . . . Hussein, T. (2019). Source specific exposure and risk assessment for indoor aerosols. *The Science of the total environment*, 668, 13-24. DOI: [10.1016/j.scitotenv.2019.02.398](https://doi.org/10.1016/j.scitotenv.2019.02.398)
  20. Marcham, C. L., Floyd, E. L., Wood, B. L., **Arnold, S.**, & Johnson, D. L. (2019). E-cigarette nicotine deposition and persistence on glass and cotton surfaces. *Journal of occupational and environmental hygiene*, 16(5), 349-354. DOI: [10.1080/15459624.2019.1581366](https://doi.org/10.1080/15459624.2019.1581366)
  21. **Arnold, S. F.**, **Shao, Y.**, & Ramachandran, G. (2017). Evaluation of the well mixed room and near-field far-field models in occupational settings. *Journal of occupational and environmental hygiene*, 14(9), 694-702. DOI: [10.1080/15459624.2017.1321843](https://doi.org/10.1080/15459624.2017.1321843)
  22. **Arnold, S. F.**, **Shao, Y.**, & Ramachandran, G. (2017). Evaluating well-mixed room and near-field-far-field model performance under highly controlled conditions. *Journal of occupational and environmental hygiene*, 14(6), 427-437. DOI: [10.1080/15459624.2017.1285492](https://doi.org/10.1080/15459624.2017.1285492)
  23. **Shao, Y.**, Ramachandran, S., **Arnold, S.**, & Ramachandran, G. (2017). Turbulent eddy diffusion models in exposure assessment - Determination of the eddy diffusion coefficient. *Journal of occupational and environmental hygiene*, 14(3), 195-206. DOI: [10.1080/15459624.2016.1238476](https://doi.org/10.1080/15459624.2016.1238476)
  24. **Graeve, C.**, McGovern, P. M., **Arnold, S.**, & Polovich, M. (2017). Testing an Intervention to Decrease Healthcare Workers' Exposure to Antineoplastic Agents. *Oncology nursing forum*, 44(1), E10-E19. DOI: [10.1188/17.ONF.E10-E19](https://doi.org/10.1188/17.ONF.E10-E19)
  25. **Arnold, S. F.**, Stenzel, M., Drolet, D., & Ramachandran, G. (2016). Using checklists and algorithms to improve qualitative exposure judgment accuracy. *Journal of occupational and environmental hygiene*, 13(3), 159-68. DOI: [10.1080/15459624.2015.1053892](https://doi.org/10.1080/15459624.2015.1053892)
  26. **Arnold, S. F.**, & Ramachandran, G. (2014). Influence of parameter values and variances and algorithm architecture in ConsExpo model on modeled exposures. *Journal of occupational and environmental hygiene*, 11(1), 54-66. DOI: [10.1080/15459624.2013.816430](https://doi.org/10.1080/15459624.2013.816430)
  27. Jayjock, M. A., Chaisson, C. F., Franklin, C. A., **Arnold, S.**, & Price, P. S. (2009). Using publicly available information to create exposure and risk-based ranking of chemicals used in the workplace and consumer products. *Journal of exposure science & environmental epidemiology*, 19(5), 515-24. DOI: [10.1038/jes.2008.43](https://doi.org/10.1038/jes.2008.43)
  28. Jayjock, M. A., Chaisson, C. F., **Arnold, S.**, & Dederick, E. J. (2007). Modeling framework for human exposure assessment. *Journal of exposure science & environmental epidemiology*, 17 Suppl 1, S81-9. DOI: [10.1038/sj.jes.7500580](https://doi.org/10.1038/sj.jes.7500580)

29. **Arnold, S. F.**, & Price, P. S. (2007). Modeling mixtures resulting from concurrent exposures to multiple sources. *Toxicology and applied pharmacology*, 223(2), 121-4.  
[DOI: 10.1016/j.taap.2006.11.032](https://doi.org/10.1016/j.taap.2006.11.032)

### **Book Chapters**

Jones, R., Simmons, C., **Arnold, S.** Health and Safety Consulting. Chapter 18 in *Moser's Effective Management of Health and Safety Programs: A Practical Guide* Fourth Edition, Kurt Hegmann, MD, MPH and Matthew Hughes, MD, MPH, Editors, OEM Press, Utah 2023 - anticipated publication date.

Robbins, C., Swenson, L., **Arnold, S.** Exposure Assessment. Chapter 24 in *Toxicology Principles for the Industrial Hygienist*, 2<sup>nd</sup> Edition: American Industrial Hygiene Press, 2700 Prosperity Avenue, Fairfax, VA (2017).

**Arnold, S.**, Stenzel, M., Ramachandran, G. Approaches to Improving Professional Judgment Accuracy, Chapter 6 in *A Strategy for Assessing and Managing Exposures*, 4<sup>th</sup>. Ignacio, J., Bullock, W., Editors, AIHA Press, 2015.

Stenzel, M., **Arnold, S.** Rules and Guidelines to Facilitate Professional Judgment, Chapter 26 6 in *A Strategy for Assessing and Managing Exposures*, 4<sup>th</sup> Ignacio, J., Bullock, W., Editors, AIHA Press, 2015.

**Arnold, S.**, Nelson, D., Milz, S. Occupational Risk and Exposure Assessment. Chapter 5 in *The Safety Professionals Handbook*, Vol. II. Joel Haight, Editor, American Association of Safety Engineers 2<sup>nd</sup> Edition (2012).

Jayjock, M., **Arnold, S.** Chapter 10: Modeling Inhalation Exposure in *The Occupational Environment: Its Evaluation, Control, and Management*, 3<sup>rd</sup> edition. Edited by Daniel H. Anna, PhD, CIH, CSP (2011).

**Arnold, S.**, Ramachandran, G., Jayjock, M.A. Model Selection. Chapter 12 in *Mathematical Models for Estimating Occupational Exposure to Chemicals*, 2<sup>nd</sup> Edition, Keil CB, Simmons CE and Anthony TR, Editors, American Industrial Hygiene Association, ISBN: 978-1-935082-10-1, Fairfax, VA (2009).

Armstrong, T.W., Jessup, B.W., **S. Arnold.** Knowledge-Based Models. Chapter 8 in *Mathematical Models for Estimating Occupational Exposure to Chemicals*, 2<sup>nd</sup> Edition, Keil CB, Simmons CE and Anthony TR Editors, American Industrial Hygiene Association, ISBN: 978-1-935082-10-1, Fairfax, VA (2009).

Jayjock, M.A., Ramachandran, G., **Arnold, S.** Uncertainty. Chapter 10 in I, 2<sup>nd</sup> Edition, Keil CB, Simmons CE and Anthony TR Editors, American Industrial Hygiene Association, ISBN: 978-1-935082-10-1, Fairfax, VA (2009).

Pearson, R.L., Jayjock, M.A., **Arnold, S.** REACh – A New and Important Reason to Learn Modeling. Chapter 14 in *Mathematical Models for Estimating Occupational Exposure to Chemicals*, 2nd Edition, Keil CB, Simmons CE and Anthony TR Editors, American Industrial Hygiene Association, ISBN: 978-1-935082-10-1, Fairfax, VA (2009).

Nelson, D., **Arnold, S.**, Milz, S. Occupational Risk and Exposure Assessment. Chapter 5 in *The Safety Professionals Handbook*, Vol. II. Joel Haight, Editor, American Association of Safety Engineers, ISBN: 978-1885581532, Des Plaines, IL (2008).

Robbins, C., Swenson, L., **Arnold, S.** Exposure Assessment. Chapter 20 in *Toxicology Principles for the Industrial Hygienist*, American Industrial Hygiene Press, 2700 Prosperity Avenue, Fairfax, VA, May (2008).

### *Non-refereed Journal Articles*

**Arnold, S.** NIOSH OEB document “The NIOSH Occupational Exposure Banding Process: Guidance for the Evaluation of Chemical Hazards– External Review draft”

**Arnold, S., Illies, A.** The TLV Journey. Reflections on the Evolution and Significance of the TLV Committee. *The Synergist*, September, 2016.

**Arnold, S., Ramachandran, G.** Judgment Day: How Accurate Are Industrial Hygienists’ Qualitative Exposure Assessments? *The Synergist*, January, 2014.

### **Presentations, Posters, and Exhibits**

*Student co-presenter indicated with underline.*

#### **Poster**

Floeder A, Huang J, Jeronimo M, Villalta P, Borgatti A, **Arnold S**, Balbo S (2022). Assessment of chemotherapy drugs in occupational settings, American Industrial Hygiene Conference & Exposition, Nashville, TN, May 2022.[Best in Show - 1<sup>st</sup> Place Gold]

Kuehn S. **Arnold S.**(2022) Characterizing healthcare worker occupational exposure to nitrous oxide during administration via face masks to pediatric patients, American Industrial Hygiene Conference & Exposition, Nashville, TN, May 2022.

Oleson A, Burton R, **Arnold S** Dermal exposure assessment of isobornyl acrylate use in photopolymerization 3d printing dermal exposure assessment of isobornyl acrylate use in photopolymerization 3d printing, American Industrial Hygiene Conference & Exposition, Nashville, TN. May 2022

Hansen, G., **Arnold, S.**, Noise Exposure Assessment for Animal Care Workers Canine Facilities, American Industrial Hygiene Conference and Exposition, Seattle, Washington, United States. (June 7, 2017).

**Presentation/Talk**

**Arnold, S.** (2023) “Novel Technologies and New Contaminants: Resources for Educators and Industry” American Association for the Advancement of Science Conference, Washington, D.C. March 2023 *Invited*

Burton R, Oleson A, **Arnold S**, (2022) Characterization of inhalation and dermal exposures in vat polymerization and binder jetting methods of additive manufacturing,” American Industrial Hygiene Conference & Exposition, Nashville, TN. May 2022 *Invited*.

Burton R, Oleson A, **Arnold S**, (2022) Characterization of inhalation and dermal exposures in vat polymerization and binder jetting methods of additive manufacturing, International Society of Exposure Science, Lisbon, Portugal. September, 2022. *Invited*.

Burton R, Oleson A, **Arnold S**, (2022) Introduction to Occupational Hazards of Additive Manufacturing," American Industrial Hygiene Association Upper Midwest Local Section professional development course, November 2022, Roseville, MN *Invited*.

Floeder A, Huang J, Jeronimo M, Villalta P, Borgatti A, **Arnold S**, Balbo S (2022). Development of a surface sampling method using liquid chromatography-mass spectrometry for the identification of chemotherapy contamination in occupational settings, Masonic Cancer Center Research Symposium, Minneapolis, MN, May 2022. *Invited*.

Floeder A, Huang J, Jeronimo M, Villalta P, Borgatti A, **Arnold S**, Balbo S (2022). Assessment of chemotherapy drug contamination in occupational settings. Assessment of chemotherapy drug contamination in occupational settings, Midwest Center Continuing Education Directors Meeting, August 2022. *Invited*.

Floeder A, Huang J, Jeronimo M, Villalta P, Borgatti A, **Arnold S**, Balbo S (2022). Assessment of chemotherapy drug contamination in occupational settings, International Society for Environmental Epidemiology, Athens, Greece, September 2022. *Invited*.

Floeder A, Huang J, Jeronimo M, Villalta P, Borgatti A, **Arnold S**, Balbo S (2022). Assessment of chemotherapy drug contamination in occupational settings, International Society of Exposure Science, Lisbon, Portugal, September 2022. *Invited*.

Floeder A, Huang J, Jeronimo M, Villalta P, Borgatti A, **Arnold S**, Balbo S (2022). Assessment of chemotherapy drug contamination in occupational settings. Assessment of chemotherapy drug contamination in occupational settings, Education and Research Centers Industrial Hygiene Webinar Series, November 2022. *Invited*.

**Arnold, S. (Presenter)** “Making the MN Mask: A Team-Building Event” Workplace Health Without Borders, Webinar Series, (December 16, 2020) *Invited*

**Arnold, S., (Presenter)**, “Interdisciplinary Rapid Response to Address Critical PPE Shortages” UMN School of Public Health Forum *SPH’s Critical Role in Tackling COVID-19* (December 9, 2020) *Invited*

**Arnold, S., (Presenter)**, Davies, H., (Presenter), Jeronimo, (Presenter), M. “Advancing Surveillance Protocols for Antineoplastic Drug Exposures in Health Care Settings”



WorkSafe BC (June 27, 2020) *Invited.*

**Arnold, S., (Presenter)**, “Masks 101: Respiratory Protection Today - Applied Concepts” Hennepin County Medical Center Grand Rounds, (April 13, 2020). *Invited.*

**Arnold, S. (Presenter)**, “A collaborative approach to cancer prevention: identifying and reducing exposures to antineoplastic drugs” UMN SPH Research Day, (April 16, 2020) *Invited.*

Burton, R., (Presenter), **Arnold, S., (Presenter)** "Assessing Occupational Exposures in Additive Manufacturing," American Industrial Hygiene Conference and Exposition, Minneapolis, Minnesota, United States. (May 21, 2019). *Invited.*

**Arnold, S., (Presenter)**, Davies, H., (Presenter), Jeronimo, M., (Presenter), Chambers, C., (Presenter) "Perspectives and Insights from the Surveillance for Anti-Cancer Drugs Exposure (SurFACE) Study. Lessons Learned in the Field." American Industrial Hygiene Conference and Exposition, Minneapolis, Minnesota, United States. (May 21, 2019). *Invited.*

**Arnold, S., (Author & Presenter)** "The Practical Role of the Industrial Hygienist in Total Worker Health: Tools and Methods for Integrating Total Worker Exposure into IH Core Competency and Practice," American Industrial Hygiene Conference and Exposition, Minneapolis, Minnesota, United States. (May 21, 2019). *Invited.*

Kaup, H., (Presenter), **Arnold, S., (Presenter)**, Schroeder, E., (Presenter), Malard Johnson, D., (Presenter) "Establishing Antineoplastic Drug Surveillance in Healthcare Settings," American Industrial Hygiene Conference and Exposition, Minneapolis, Minnesota, United States. (May 20, 2019). *Invited.*

Kaup, H., (Presenter), **Arnold, S., (Presenter)** "Antineoplastic Drugs in Clinical Healthcare Settings: Understanding Potential Exposure Pathways to Healthcare Professionals," International Occupational Hygiene Association, Washington, District of Columbia, United States. (September 24, 2018). *Invited.*

Kaup, H., (Presenter), **Arnold, S., (Presenter)** "Antineoplastic Drugs in Clinical Healthcare Settings: Understanding Potential Exposure Pathways to Healthcare Professionals," American Industrial Hygiene Conference and Exposition, Philadelphia, Minnesota, United States. (May 21, 2018). *Invited.*

**Arnold, S., (Author & Presenter)** "Precarious Employment and Occupational Exposure," Minnesota Population Center seminar presentations University of Minnesota, Minneapolis, Minnesota, United States. (December 11, 2017). *Invited.*

**Arnold, S., (Author & Presenter)** "Exposure Risk Assessments: Better, Faster, More Accurate," American Industrial Hygiene Fall Conference on Leadership and Management, Tampa, Florida, United States. (October 30, 2017). *Invited.*

**Arnold, S., (Author & Presenter)** "Streamlining Exposure Assessment: Tools for

Efficient, Accurate Decision Making," American Industrial Hygiene Conference and Exposition, Seattle, Washington, United States. (June 6, 2017). *Invited.*

**Arnold, S., (Author & Presenter)** "Estimating and Evaluating an Evaporation Rate Constant for Acetic Acid Emanating from a Consumer Product Floor Cleaning Product," American Industrial Hygiene Conference and Exposition, Seattle, Washington, United States. (June 5, 2017). *Invited.*

**Arnold, S., (Author & Presenter)** "Employing a Research-to-Practice Approach to Improving our Exposure Judgement Accuracy using Models and Checklists," Occupational Hygiene Association of Ontario Spring Meeting, Mississauga, Canada. (March 23, 2017). *Invited.*

**Arnold, S., (Author & Presenter)** "Employing a Research to Practice Approach to Improving our Exposure Judgement Accuracy using Models and Checklists," American Industrial Hygiene Association, Oklahoma Local Section Annual Professional Development Conference, Oklahoma, United States. (April 21, 2016). *Invited.*

**Arnold, S., (Author & Presenter)** "Employing a Research to Practice Approach to Improving our Exposure Judgment Accuracy using Models and Checklists," American Industrial Hygiene Association Gulf Coast Local Section, United States. (March 3, 2016). *Invited.*

**Arnold, S., (Author & Presenter)** "Professional Judgment, Prediction and Qualitative Exposure Assessments," American Industrial Hygiene Association Upper Midwest Local Section Annual Professional Development Conference, St. Paul, Minnesota, United States. (November 19, 2015). *Invited.*

**Arnold, S., (Author & Presenter), Ramachandran, G., (Presenter), Shao, Y., (Presenter)** "Evaluating Model Performance under Highly Controlled Conditions," American Industrial Hygiene Conference and Exposition, Salt Lake City, Utah, United States. (June 3, 2015). *Invited.*

**Arnold, S., (Author & Presenter), Ramachandran, G., (Presenter), Shao, Y., (Presenter)** "Predicting Construction Related Silica Exposures using Input from Chamber and Field Studies," American Industrial Hygiene Conference and Exposition, Salt Lake City, Utah, United States. (June 3, 2015). *Invited.*

**Arnold, S., (Author & Presenter), Ramachandran, G., (Presenter), Shao, Y., (Presenter)** "Evaluating Model Performance under Real World Conditions," American Industrial Hygiene Conference and Exposition, Salt Lake City, Utah, United States. (June 2, 2015). *Invited.*

**Arnold, S., (Presenter), Ramachandran, G., (Presenter), Stenzel, M., (Presenter), Drolet, D., (Presenter)** "Improving Qualitative Exposure Assessment Accuracy," American Industrial Hygiene Conference and Exposition, San Antonio, Texas, United States. (June

2014). *Invited.*

**Arnold, S., (Presenter),** Stenzel, M., (Presenter), Drolet, D., (Presenter) "QUAL Check: A Novel Qualitative Exposure Assessment Checklist Tool," American Industrial Hygiene Conference and Exposition, San Antonio, Texas, United States. (June 2014). *Invited.*

**Arnold, S., (Presenter),** Drolet, D., (Presenter), Sahmel, J., (Presenter) "Industrial Hygiene Exposure Scenario Tool: A New Tool to Help Collect and Organize Exposure-Related Information," American Industrial Hygiene Conference and Exposition, Montreal, Canada. (May 2013). *Invited.*

**Arnold, S., (Author & Presenter)** "Workshop on Exposure Assessment Strategy: Are you Hitting the Bull's Eye? Moderator," American Industrial Hygiene Conference and Exposition, Montreal, Canada. (May 2013). *Invited.*

**Arnold, S., (Presenter),** Ramachandran, G., (Presenter) "Understanding the Influence of Parameter Values and Variances and Algorithm Architecture in ConsExpo on Modeled Exposures," British Occupational Hygiene Society Conference, Manchester, United Kingdom. (April 2013). *Invited.*

**Arnold, S., (Author & Presenter)** "Applying Bayesian Statistics in Incorporate Qualitative Information into a Qualitative Probabilistic Model," International Society for Exposure Science Conference, Minneapolis, Minnesota, United States. (2010). *Invited.*

**Arnold, S., (Author & Presenter)** "Using Bayesian Methods to Incorporate Qualitative Information into Quantitative Exposure Models," Advancements in Exposure Assessment: Decision Making Tools in a Changing World Symposium, Vancouver, Canada. (June 2009). *Invited.*

**Arnold, S., (Presenter),** Jayjock, M., (Presenter) "Calculating Average Airborne Concentrations from and Generation Rates for Emissions for Constant Short-Lived Sources," American Industrial Hygiene Conference and Exposition, Montreal, Canada. (June 2007). *Invited.*

**Arnold, S., (Author & Presenter)** "Which Model Should I Use?," American Industrial Hygiene Conference and Exposition, Anaheim, California, United States. (May 2005). *Invited.*

**Arnold, S., (Author & Presenter)** "Applying and Evaluating the 2-Zone Mathematical Exposure Model in a Paper Coating Operation," American Industrial Hygiene Conference and Exposition, Atlanta, Georgia, United States. (May 2004). *Invited.*

**Arnold, S., (Author & Presenter)** "Professional Judgment and Decision Making: Mathematical Modeling, Validation and Bayesian Statistics - Creating the Super IH," American Industrial Hygiene Conference and Exposition, Atlanta, Georgia, United States. (May 2004). *Invited.*

***Contributed Papers Presented at Professional Meetings, Conferences, etc.***

**Arnold, S.,** Ramachandran, G., Shao, Y. Evaluating model performance in highly controlled and real-world environments for Predicting Consumer Exposures to Acetic Acid Resulting from Floor Mopping Using a Floor Cleaning Formulation. International Society of Exposure Science, Henderson, NV, October 19, 2015.

***Intellectual Property***

1. Structured Deterministic Model (SDM) 2.0. 2022  
This Excel-based tool is available from the UMN Technology Commercialization through four license types. Since its release in 10/22, more than 150 licenses have been executed across 12 countries, including in 38 U.S. states and 5 Canadian provinces.
2. IEM COVID-19 Rapid Response Research Project, 2020  
The MNmask project resulted in the development of an open-licensed design (UMN Technology Commercialization) *Technology #2020-349 -A design package for three styles of emergency-use face masks*).

***Media Interviews***

1. Derailment Impacts in WV: “Officials say drinking water safe from train derailment impacts even after WV American Water temporary intake fails.”  
News Media: West Virginia Gazette  
Date: February 17<sup>th</sup>, 2023  
Link: [https://www.wvgazettemail.com/news/energy\\_and\\_environment/officials-say-drinking-water-safe-from-train-derailment-impacts-even-after-wv-american-water-temporary/article\\_a0460a4c-0f3e-5a7c-bd3b-5fc1c2958527.html](https://www.wvgazettemail.com/news/energy_and_environment/officials-say-drinking-water-safe-from-train-derailment-impacts-even-after-wv-american-water-temporary/article_a0460a4c-0f3e-5a7c-bd3b-5fc1c2958527.html)  
Link: [https://www.wvgazettemail.com/news/energy\\_and\\_environment/officials-say-west-virginians-are-safe-from-ohio-train-derailment-impacts-citing-water-and-air/article\\_6f61192c-e0f2-55da-854f-61dd23ca6096.html](https://www.wvgazettemail.com/news/energy_and_environment/officials-say-west-virginians-are-safe-from-ohio-train-derailment-impacts-citing-water-and-air/article_6f61192c-e0f2-55da-854f-61dd23ca6096.html)  
To provide expertise on assessment of environmental sampling strategy
2. “Is it safe to rent clothes during the Coronavirus Pandemic?”  
News channel/media: HuffPost  
Date: August 26<sup>th</sup>, 2020  
Link: [https://www.huffpost.com/entry/is-it-safe-rent-clothes-coronavirus-pandemic\\_15f3d34a6c5b6d8a91740a0cf](https://www.huffpost.com/entry/is-it-safe-rent-clothes-coronavirus-pandemic_15f3d34a6c5b6d8a91740a0cf)  
To provide expert opinion on the exposure risks associated with renting clothes during the pandemic
3. “Health In All Matters: Episode 7: Reopening: Navigating To A New Normal ”  
News channel/media: UMN SPH  
Date: May 1, 2020

Link: <https://www.sph.umn.edu/about/strategic-priorities/covid-19/health-in-all-matters-podcast/episode-7-reopening-navigating-to-a-new-normal/>

(Why? To describe why industrial hygiene needs to be @ table when discuss workplace considerations such as safeguards, surveillance, and what bigger picture considerations must be accounted for in deciding the who, what, why, and when of opening up workplace

4. Topic: “Five-step plan for reopening business is put to the test in China”  
 News channel/Media: Washington Post  
 Date: April 13, 2020  
 Podcast/venue: digital story  
 Link: [https://www.washingtonpost.com/world/asia\\_pacific/five-step-plan-for-reopening-business-gets-a-test-run-in-china/2020/04/12/8c0bc17e-7acb-11ea-a311-adb1344719a9\\_story.html](https://www.washingtonpost.com/world/asia_pacific/five-step-plan-for-reopening-business-gets-a-test-run-in-china/2020/04/12/8c0bc17e-7acb-11ea-a311-adb1344719a9_story.html)  
 To provide expert commentary on the measures being implemented in China
  
5. Topic: “Water Gremlin, state meet in Ramsey County court over closure of the plant”  
 News channel/Media: Minnesota Public Radio  
 Date: October 31, 2019  
 Podcast/Venue: News story on air, digital report  
 Link: <https://www.mprnews.org/story/2019/10/31/water-gremlin-state-meet-in-ramsey-county-court-over-closure-of-the-plant>  
 To describe existing methods of control and occupational health and safety regulations in place to protect workers from lead exposure)

## TEACHING

### Scheduled Teaching

PUBH 6150: Occup Hlth & Safety Problems	Spring 2022, 2021, 2020, 2017, 2016, 2015
PUBH 8194: Directed Research: Envrn Hlth	Spring 2019
PUBH 6172: Industrial Hygiene Applications	Spring 2023, 2021, 2019, 2017, 2015
PUBH 6193: Advanced Topics in Human Exposure Science	Fall 2021, 2019, 2017
PUBH 7193: Directed Study: Envrn Health	Fall 2019, Spring 2018

### Continuing Education Courses

Course Coordinator and Instructor for Professional Development Course on: Improving Inhalation Assessments, American Industrial Hygiene Association Conference and Exposition, June, 2022. (16 hours)

Co-instructor (Student Lead: Rebecca Burton) for Perspectives on Total Worker Exposure, Its Applications and Implications, ACGIH Summer series webinar August 2020. (1 hour)

Co-instructor for webinar on Surface Limits: How are They Derived and How Should They be Used in Industrial Hygiene Practice? ACGIH December, 2019. (2 hours)

Course Coordinator and Instructor for Professional Development Course on: Improving Inhalation Assessments, American Industrial Hygiene Association Conference and Exposition, June, 2019. (8 hours)

Course Coordinator and Instructor for Professional Development Course on: Improving Inhalation Assessments, American Industrial Hygiene Association Conference and Exposition, Philadelphia, PA., May, 2018. (8 hours)

Course Coordinator and Instructor for Professional Development Course on: Improving Inhalation Assessments, American Industrial Hygiene Association Conference and Exposition, Seattle, WA, June, 2017. (8 hours)

Instructor for Professional Development Course on: Exposure Assessment Strategies and Statistics. American Industrial Hygiene Association Conference and Exposition, Seattle, WA, June, 2017. (1 hour)

Course Coordinator and Instructor for Professional Development Course on: Improving Inhalation Exposure Judgments. American Industrial Hygiene Association Conference, May 2016. (4 hours)

Instructor for Professional Development Course on: Improving Inhalation and Dermal Exposure Judgments. American Industrial Hygiene Association Fall Conference, October, 2014. (4 hours)

Instructor for Professional Development Course on: Exposure Judgment: Improving Inhalation, Dermal & Noise Assessments. American Industrial Hygiene Association Conference and Exposition, May, 2013, May, 2014. (8 hours)

Instructor for Professional Development Course on: Exposure Judgment: Improving Inhalation Assessments. American Industrial Hygiene Association Georgia Local Section, Atlanta, GA, January, 2014. (6 hours)

Instructor for Professional Development Course on: Exposure Judgment: Improving Inhalation Assessments. American Industrial Hygiene Association Mid-South Local Section, Memphis, TN, March, 2014. (8 hours)

Instructor for Professional Development Course on: Introduction to Risk Assessment for the Industrial Hygienist. American Industrial Hygiene Association Conference and Exposition, May 2005, May 2006, May 2007, May 2008, May 2009, May 2010, May, 2011, June 2012. (2 hours)

Instructor for Professional Development Course on: Professional Judgment and Exposure Assessment. American Industrial Hygiene Association Lehigh Valley Local Section Conference, Philadelphia, PA, 2010. (4 hours)

Instructor for Professional Development Course on: Advancements in Exposure Assessment: Practical Tools and Rules for Decision Making. American Industrial Hygiene Association Virtual Symposium, March, 2010 (4 hours).

Instructor for Professional Development Course on: Introduction to Risk Assessment for the Industrial Hygienist. American Industrial Hygiene Association Carolinas Local Section Conference, Charlotte, NC, 2008 (8 hours).

Instructor for Professional Development Course on: Exposure Assessment Strategies and Statistics. American Industrial Hygiene Association Florida Local Section Conference, Hutchinson Is, FL, 2008 (8 hours).

Instructor for Professional Development Course on: Introduction to Models and Modeling Science for Estimating Worker and Consumer Exposures. Joint International Society of Exposure Science and International Society of Environmental Epidemiology Conference, Paris, FR, 2006 (4 hours).

Instructor for Professional Development Course on: Mathematical Models for Assessing Exposure to Indoor Air Contaminants. American Industrial Hygiene Association Ohio Local Section Conference, Toledo, OH, 2003 (8 hours).

Instructor for Professional Development Course on: Mathematical Models for Assessing Exposure to Indoor Air Contaminants. American Industrial Hygiene Association Conference and Exposition, June 2002, June 2003, May 2004, May 2008 (4 hours).

Instructor for Professional Development Course on: Exposure Assessment Strategies and Statistics. American Industrial Hygiene Association Conference and Exposition, June 1999, June 2000, June 2001 (2 hours).

### **Guest Lectures**

PubH 6170 Introduction to Occupational Health and Safety. Topic: Occupational Exposure Limits, 2 classes (6 hours), October and December 2018, 2019

PubH 6112 Environmental Health Risk Assessment. Topic: Assessing Chemical Mixtures, 1 class (2 hours), November, 2018, 2019

### **RESEARCH GRANT PARTICIPATION**

1. ***The Interdisciplinary Training, Education and Research Activities for Assessing and Controlling Contaminants from Emerging Technologies (InTERACCT) Program***  
National Institute of Environmental Health Sciences (NIEHS) R25, \$ 1,137,053, 9/1/21

- 8/30/26 Principal Investigator (25% salary support) The InTERACCT Program is a multi-institutional education and training effort that develops and disseminates a web-based curriculum and provides research experiences to prepare a variety of learners with the skills necessary to address health and safety issues that arise in emerging technology workplaces. The program is focusing presently on learning materials related to nanotechnology, additive manufacturing and novel drug delivery.
2. ***Factors Influencing the Transmission of Airborne Viruses (FITrAV)*** Donor Sponsored 200,000, 9/1/21 – 8/30/23 Co-PI (10% salary support) The objective of the first phase of this research is to comprehensively assess concentrations, sizes, and viability of human-generated viruses in the air and areal loadings and viability of viruses on surfaces in high-risk workplaces and public spaces.
  3. ***Midwest Center for Occupational Health and Safety (MCOHS) Training Grant, NIOSH T42 OH008428*** \$9,000,000, 10/2020-9/2025, PI: Marizen Ramirez. Role: Deputy Director (25% salary support). Major goals: to prepare occupational health and safety professionals to address current and emerging threats to the nation's workforce through: 1) cutting-edge interdisciplinary academic and research training to prepare exceptional leaders in occupational health and safety, and 2) conduct high-impact outreach through continuing education and translation of research-to-practice. For this 2020-2025 competitive renewal, MCOHS will also pursue training, research and outreach in occupational health equity as a sub-theme of the center to address the needs of an increasingly diverse workforce.
  4. ***Evaluating Inhalation Exposure Risks of Fibers from Masks Constructed with EX-101 and EX-103 Materials***, Engineering in Medicine (IEM) COVID-19 Rapid Response Grant Program, \$10,000, 7/21 – 7/23 co-Principal Investigator. To assess the risk of inadvertent exposure to microscopic or nanoscopic fibers capable of being inhaled and reaching the lung.
  5. ***Characterization of Exposures during Metal Additive Manufacturing (CHEM AM)*** MCOHS Pilot Study Grant, \$20,000 7/1, 2020 – 6/30, 2023 Student PI: Katherine Seranno Role: Faculty-PI. To characterize worker exposures to metals from the additive manufacturing powder bed fusion process.
  6. ***Investigation of Doxorubicin and Cyclophosphamide Reaction with a Decontamination Products using High Resolution Mass Spectroscopy*** MCOHS Pilot Study Grant, \$20,000, 3/3 2020 – 7/1 2023 Student PI: Andrew Floeder Role: Faculty-Co-PI. To investigate efficacy of antineoplastic drug decontamination methods of two antineoplastic drugs following treatment with two decontamination products in veterinary clinics and homes of pets undergoing chemotherapy.
  7. ***Investigation of the Reaction Chemistry of Antineoplastic Drugs and a Cleaning Product*** MCOHS Pilot Study Grant, \$20,000, 9/1/2019 -6/30/23 Principal Investigator. To understand the breakdown chemistry of antineoplastic drugs when treated with decontamination products, and identify potentially toxic byproducts toward developing



safe and effective decontamination protocols

8. ***Chemotherapy Drug Handling and Potential for Inadvertent Exposure among BC Veterinarians*** Worksafe BC: Innovations at Work 2019, \$50,000 – 2023 PI: Hugh Davies Role: Co-Investigator. Compared to human settings, very little is known about the extent of the exposure hazard in veterinary settings, and no studies have sought a comprehensive characterization of exposure hazard to antineoplastic drugs in Canadian settings. The purpose of this research is to characterize antineoplastic drug use in BC veterinary practice, including drug administration and handling practices, current levels of safety controls, current levels of education and training around antineoplastics; and characterize antineoplastic drug contamination on various surfaces, examining what drugs are found, where they are found, in what concentrations, and which types of surface materials are contaminated.
9. ***Characterizing Emissions Generated by 3D Printing Operations*** MCOHS Pilot Study Grant, \$20,000 1/1/2019 – 6/30/23 Student PI: Rebecca Burton Role: Faculty-PI. To characterize airborne emissions during tasks associated with binder jetting and vat photopolymerization, and use the exposure determinant data generated with predictive models to recommend ideal engineering controls for this technology.
10. ***Community Based Participatory Research Focus Groups and Key Informant Interviews of East African and Latino Salon Workers*** The U is For You'/Community Health Connections Grant \$5,000 (2019-2020) Faculty PI
11. ***Exposure Assessment of Antineoplastic Drug Contamination on Work Surfaces*** Alberta (Canada) Occupational Health and Safety (OHS) Futures Research Funding Program, 2/1/18-12/31/20 Co-PI (University of British Columbia – Prime) To develop better surveillance strategies to minimize future exposures to antineoplastic agents in hospital settings.
12. ***Midwest Center for Occupational Safety and Health Education and Research Center***, NIOSH T42OH008434 \$8,000,000 2015-2020 PI: Susan Gerberich, Role: Co-Investigator (5% salary support). The major goals of this project are to provide training support for pre-doctoral training in industrial hygiene, occupational health nursing, and hazardous substances.
13. ***Understanding Occupational Health and Safety Knowledge and Behaviors Among Cosmetologists in Minnesota*** MCOHS Pilot Study Grant, \$20,000, 7/1/18 – 1/31/20 Student PI: Jennifer Saunders Faculty Co-PI. To understand the knowledge, attitudes and beliefs about work-related exposures among the approximately 17,500 licensed cosmetologists, estheticians and manicurists in Minnesota.
14. ***Assessment of the Hazards and Risks of Nail Care Products***, SOC. FOR CHEMICAL HAZARD COMMUNICATION, \$2,000 3/31/16-12/31/16 Principal Investigator. To explore the knowledge, attitudes and beliefs about work-related exposures among a subset of licensed cosmetologists, estheticians and manicurists in Minnesota.

15. ***Hierarchical statistical modeling and Bayesian melding for occupational exposure***  
 NIOSH grant 1 RO1 OH010093-01A1, PI: Sudipto Banerjee; Co-Investigator (UCLA Prime), September 2013-August 2017, \$1,025,391 (25% salary support). This proposal attempts to advance scientific understanding of the underlying physical processes in occupational hygiene by developing innovative statistical tools for estimating and validating such models using field data. Exposure models can significantly improve the efficiency and effectiveness of risk assessment and management programs by helping to predict exposures for operations that have not yet been installed or by reconstructing exposures for processes that have long disappeared. The proposal outlines statistical methods that can be combined with the exposure model equations to produce a unifying framework for parameter estimation and model validation

**RESEARCH GRANTS SUBMITTED:**

1. ***A Community Informed Intervention to Promote Healthy Worker Environments in Immigrant-Owned Nail Salons*** NIH-NIMHD R01 PI: T. Huynh, (5% salary support). This proposal intends to assess interventions designed to address chemical safety, as well as infection control, musculoskeletal disease prevention, and labor practices of workers in nail salons. I will use this research period to cultivate a relationship with the Vietnamese Nail Salon community by working through community contacts, with the intention of transferring successes and lessons learned with the Philadelphia nail salon community. 07/2023 – 06/2028
2. ***Hazardous Drug Exposure Prevention Program: A Pilot Study (HazDEPP)***  
 WorkSafe B.C. Specific Priorities/Systematic Reviews Grant PI: H. Davies. Using a “social dialogue” model that is incorporated in the OHS legislative framework of the Netherlands and the successful Pan-European silica control program (NEPSI), we will use this approach to bring all parties (e.g., employees/unions, employers, scientists and regulators) together to work on a common goal (e.g., HD exposure reduction) in a collaborative way that is evidence-based (e.g., surveillance data) and that informs best practices for the wider community. 09/23-08/25

**ADVISING AND MENTORING**

**Graduate Student Activities**

*Advisees*

PhD Program

Majid Bagheri Hosseinabadi, Environmental Health PhD (co-advise)	2022 - Present
Puleng Moshele, Environmental Health PhD	2020 - Present
Andrew Floeder, Occupational Epi PhD (co-advise)	2020 – Present
Katherine Serrano, Environmental Health PhD	2019 - Present
James Underwood, Environmental Health PhD	2019 - Present
Rebecca Burton, Environmental Health PhD	2018 - Present

Hannah Kaup, Environmental Health PhD 2018 - 2020

Master's Program

Tim Nguyen, Environmental Health (IH) MS	2022 - Present
Lauren Sherman, Environmental Health (IH) MS	2022 – Present
Julia Toothman, Environmental Health (IH) MS	2021 - Present
Kate Twaddle, Environmental Health (IH) MS	2021 - Present
Andrea Oleson, Environmental Health (IH) MS	2019 - Present
Amanda Kramer, Environmental Health (IH) MS	2018 - 2021
Minghong Jiang, Environmental Health MS	2017 - 2020
Otis Heymann, Environmental Health MPH	2016 - 2019
Keerthanaa Jeeva, Environmental Health MPH	2016 - 2019
Shanna Kuehn, Environmental Health (IH) MPH	2016 - Present
Mason Murdock, Environmental Health (IH) MS	2016 - 2020
Greg Hansen, Environmental Health (IH) MPH	2017 - 2018
Chinomso Ibe, Environmental Health (IH) MPH	2016 - 2017

***Committee Advising***

***Doctoral Final Committee: Committee Reviewer***

Michael Benjamin, Environmental Health, PhD Doctoral Examination Committee University of Cincinnati <i>Thesis: Cleaning Product Chemical Exposures Measured in a Simulated Home Healthcare Work Environment</i>	2019
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Mohamed Eturki Environmental Health PhD Doctoral Examination Committee, University of Cincinnati <i>Thesis: "Industrial Hygiene Exposure Estimation Accuracy: An Investigation of Micro-Environmental Factors Impacting Exposure"</i>	2019
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Xiaoyue Zhao, Biostatistics PhD <i>Thesis: Bayesian modeling and inference for asymmetric responses with applications</i>	2017
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***Doctoral Preliminary Committee: Committee Member***

Jennifer Saunders, Hlth Srv Rsrch/Policy/Adm PhD	2019 - Present
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***Master's Thesis/Research Committee: Committee Chair***

Dadee Saye, Environmental Health MS	2021
Sarah Garcia, Environmental Health MS	2021
Mason Murdock, Environmental Health MS	2019

Hannah Kaup, Environmental Health MS 2018  
 Guole Shi, Environmental Health MS 2018

***Master's Thesis/Research Committee: Committee Member***

Puleng Moshele, Environmental Health MS 2022  
 Mason Murdock, Environmental Health MS 2020  
 Amber Illies, Environmental Health MS 2018  
 Guole Shi, Environmental Health MS 2018  
 Colton Porter, Environmental Health MS 2017  
 Ali Zhang, Environmental Health MS 2016

***Advanced Placement (AP) High School Student Mentorship***

Richard Gu 2021

**SERVICE**

**Service to the Discipline/Profession/Interdisciplinary Area(s)**

***Chair***

American Conference of Governmental Industrial Hygienists (ACGIH) Board of Directors 2016 - 2017  
 American Industrial Hygiene Association (AIHA) Exposure Assessment Strategies Committee 2007

***Reviewer***

NIOSH External Peer Reviewer for internal grant 2019

**Service to the University/College/Department**

***University of Minnesota***

Member, Institute for Engineering in Medicine, COVID-19 Task Force 2020 – 2022  
 Member, Screening, Prevention, Etiology and Cancer Survivorship (SPECS) Program Masonic Cancer Research Center 2017 - Present

***School of Public Health***

School of Public Health Faculty member, **Health Equity Work Group** 2019- Present  
 Salary Equity Review Committee (SERC) 2022-Present

***Department***

Member, Environmental Health Sciences Curriculum Committee 2018 - Present  
 Member, Environmental Health Sciences Recruitment Committee 2017 – Present  
 Health and Safety Manager, IH Lab 2021 – Present  
 Member, Environmental Health Sciences Research 2021 - Present

Committee