

ELIZABETH NANCE
Curriculum Vitae

Department of Chemical Engineering
Benson Hall #243
Box Number 351750
Seattle, WA 98195

Phone: 206-543-2216
Fax: 206-543-3778
Email: eanance@uw.edu

EDUCATIONAL HISTORY

Johns Hopkins Medical Institutions, Baltimore, MD
Postdoctoral Research Fellow, Anesthesiology and Critical Care Medicine (Discipline: Neuroscience)
2013 – 2015

Johns Hopkins University, Baltimore, MD
Ph.D., Chemical and Biomolecular Engineering
December 2012
Thesis title: Brain penetrating nanoparticles for the treatment of central nervous system diseases

North Carolina State University, Raleigh, NC
B.S., Chemical Engineering with Honors
Minor in Biotechnology
Concentration in Biochemical Engineering
December 2006
Thesis title: Effect of co-culturing on functional genomics of hyperthermophilic microorganisms

EMPLOYMENT HISTORY

2022 – Present *Bioengineering & Translational Medicine*
American Institute of Chemical Engineers & Wiley Publishing
Interim Editor-In-Chief

2021 – Present University of Washington
Seattle, WA, USA
Jagjeet and Janice Bindra Endowed Career Development Associate Professor, Department of
Chemical Engineering

2020 – Present University of Washington
Seattle, WA, USA
Associate Chair of Undergraduate Studies

2015 – 2021 University of Washington
Seattle, WA, USA
Clare Booth Luce (2015-2020) and Jagjeet and Janice Bindra Endowed Career Development (2020 –
2021) Assistant Professor, Department of Chemical Engineering

- 2013 – 2015 Johns Hopkins Medical Institutions
Baltimore, MD, USA
Postdoctoral Fellow, Department of Anesthesiology and Critical Care Medicine
- 2010 – 2012 Thread (501c non-profit)
Baltimore, MD, USA
Site Director, East Baltimore Site-Dunbar Lawrence High School
- 2006 – 2007 North Carolina State University
Raleigh, NC, USA
Research Technician I, Department of Chemical Engineering

AWARDS AND HONORS

- 2022 Faculty Appreciation for Career Education & Training Award, University of Washington
- 2021 Distinguished Young Alumni Award, NC State Department of Chemical & Biomolecular Engineering
- 2021 Mellichamp Lectureship, Purdue University Davison School of Chemical Engineering
- 2020 ASEE Curtis W. McGraw Research Award Finalist (top 5 in U.S.)
- 2020 Jagjeet and Janice Bindra Endowed Career Development Professorship
- 2020 *Bioengineering & Translational Medicine* 'Future' Leader in the Field, *BioTM* Editorial Board
- 2020 Faculty Appreciation for Career Education & Training Award, University of Washington
- 2020 Celebrate Womxn award, University of Washington Residential Life
- 2019 Presidential Early Career Achievement in Science & Engineering (PECASE) award, Office of Science and Technology Policy, White House
- 2019 Undergraduate Research Mentor Award, University of Washington
- 2019 Faculty Appreciation for Career Education & Training Award, University of Washington
- 2019 College of Engineering Junior Faculty Award, University of Washington
- 2018 Early Career Achievement Award in STEM, Association of Women in Science (AWIS)
- 2018 45 Under 45 Young Innovator Award in Nanobiotechnology, *Nano Research* Editorial Board
- 2018 NANOMED Young Inspiring Scientist, European Union's Horizon 20/20 Program
- 2015 Clare Boothe Luce Assistant Professorship, Luce Foundation
- 2015 30 Under 30 for Science & Medicine, *Forbes* Magazine
- 2015 Paper of the Year Award, Controlled Release Society
- 2014 Career Award at Scientific Interfaces Awardee, Burroughs Wellcome Fund
- 2014 Award for Research Excellence, Johns Hopkins Center for Nanomedicine
- 2014 Annual Scientific Award Winner, Society of Critical Care Medicine
- 2013 Annual Research Award Winner, Johns Hopkins Anesthesiology/Critical Care Medicine
- 2013 Postdoctoral Fellowship, Hartwell Foundation
- 2013 Applications in Neural Stereology Certification, Stereology Resource Center
- 2012 Award for Research Excellence, Johns Hopkins Center for Nanomedicine
- 2005 Frank and Doris Culbertson Endowed Scholarship, NC State University
- 2005 Omega Chi Epsilon Chemical Engineering Society, Inducted
- 2005 Master Certification, College Reading and Learning Association
- 2004 Tau Beta Pi Engineering Honor Society, Inducted
- 2003 All-South Female Soccer Player (All-American, High School)
- 2003 Regional Female Athlete of the Year (High School), North Carolina

- 2003 Regional Female Soccer Player of the Year (High School), North Carolina
1998 Good Citizen Award, Daughters of the American Revolution, Washington D.C.

AFFILIATIONS AND OTHER APPOINTMENTS

University of Washington
Seattle, WA, USA
Associate Professor, Department of Bioengineering (2021 – present)

University of Washington
Seattle, WA, USA
Affiliate Appointment, eScience Institute (2019 – present)

University of Washington
Seattle, WA, USA
Affiliate Appointment, Center on Human Development and Disability (2016 – present)

University of Washington
Seattle, WA, USA
Adjunct Appointment, Department of Radiology (2016 – present)

University of Washington
Seattle, WA, USA
Affiliate Appointment, Molecular Engineering & Sciences Institute (2015 – present)

PUBLICATIONS

Google Scholar: https://scholar.google.com/citations?user=_x5_eeIAAAAJ&hl=en

Citation data taken from Google Scholar on August 17, 2022. Citation Counts in []. Total citations: 3061

Corresponding author(s) has * by name, co-first authors are underlined

Footnotes indicate ¹graduate students, ²undergraduate students, and ³high school students mentored by **E. Nance**.

****NSF Funded Research**

Refereed archival journal publications – original research in nanomedicine, neuroscience, and data science

45. Nyambura C., **Nance E.**, Pfaendtner J.*, Examining the Effect of Polymer Extension on Protein-Polymer Interactions That Occur during Formulation of Protein-Loaded Poly(lactic acid-co-glycolic acid)-polyethylene Glycol Nanoparticles. *Polymers* (2022) 14(21): 4730; doi: 10.3390/polym14214730
44. Dahl V.², Helmbrecht H.¹, Rios Sigler A., Hildahl K., Sullivan H.², Janakiraman S.², Jasti S.², Nance E.* Characterization of a mGluR5 knockout rat model with hallmarks of Fragile X Syndrome. *Life* (2022); 12(9): 1308; doi: 10.3390/life12091308
43. McKenna M., Filteau J., Sluis K., Chungyoun M., Butler B., Schimek N., **Nance E.*** Organotypic whole hemisphere brain slice models to study the effects of donor age and oxygen-glucose-deprivation on the extracellular properties of cortical and striatal tissue; *Journal of Biological Engineering* (2022); 16:14; doi: 10.1186/s13036-022-00293-w ****NSF funded research**

42. Nyambura, C. W.¹; Sampath, J.; Nance, E.; Pfaendtner, J.* Exploring Structure and Dynamics of the PLGA-PEG Copolymer and its Homopolymer Constituents in Various Solvents Using All-Atom Molecular Dynamics. *Journal of Applied Polymer Science* (2022); doi: 10.1002/app.52732. ****NSF funded research**
41. Kolnik S., Corry K., Hildahl K., Filteau J.¹, White O., Brandon O., Farid L., Shearlock AM, Mareljo D., Juul S., Nance E., Wood T.* Vitamin E decreases cytotoxicity and mitigates inflammatory and oxidative stress responses in a ferret organotypic brain slice model of neonatal hypoxia-ischemia. *Developmental Neuroscience* (2022) doi: 10.1159/000522485. [1]
40. Gornalusse G., Zhang M.,¹ Wang R., Rwigamba E., Kirby A.C., Fialkow M., Nance E., Hladik F. and Vojtech L.* HSV-2 infection enhances Zika virus infection of primary genital epithelial cells independently of the known ZIKV receptor AXL. *Frontiers in Microbiology* (2022) 4415. [1]
39. Nguyen, N.P.,¹ Helmbrecht H.,¹ Ye Z.,² Adebayo T.,² Hashi N.,² Doan M-A., Nance E. Brain tissue derived extracellular vesicles for therapeutic in neonatal ischemic brain injury. *Int Journal of Molec Sci.* (2022) 23(2):620. doi: 10.3390/ijms23020620. [1] ****NSF funded research**
38. Wood T.R., Hildahl K.,¹ Helmbrecht H.,¹ Corry K.A., Moralejo D.H., Kolnik S.E., Prater K.E., Juul S.E., Nance E.* A ferret brain slice model of oxygen-glucose deprivation captures regional responses to perinatal injury and treatment associated with specific microglial phenotypes. *Bioeng & Transl. Med* (2021) e10265; doi: 10.1002/btm2.10265 [4] ****NSF funded research**
37. Helmbrecht H., Xu N., Liao R. Nance E.* Data management schema design for effective nanoparticle formulation for neurotherapeutics. *AIChE Journal* (2021) 67:12, e17459; doi: 10.1002/aic.17459 [1] ****NSF funded research**
36. Joseph A.¹, Motchoffo Simo G.², Gao T.², Alhindi N.², Xu N.¹, Graham D.J., Gamble L.J., Nance E.* Surfactants influence polymeric nanoparticle fate in the brain. *Biomaterials* (2021) 277: 121086; doi: 10.1016/j.biomaterials.2021.121086. [3]
35. Joseph A.¹, Nyambura C.¹, Bondurant D.², Corry K., Beebout D.², Wood T., Pfaendtner J., Nance E.* Formulation and efficacy of catalase-loaded nanoparticles for the treatment of neonatal hypoxic-ischemic encephalopathy. *Pharmaceutics* (2021) 13(8), 1131; doi: 10.3390/pharmaceutics13081131 [2] ****NSF funded research**
34. McKenna M.¹, Shackelford D.¹, Ferreira Pontes H.², Ball B.K.², Nance E.* Multiple particle tracking detects changes in brain extracellular matrix structure and predicts neurodevelopmental age. *ACS Nano* (2021) 15(5):8559-8573; doi: 10.1021/acsnano.1c00394 [4]
33. Joseph A.¹, Liao R.¹, Zhang M.¹, Helmbrecht H.¹, McKenna M.¹, Filteau J.¹, Nance E.* Nanoparticle-microglial interaction in the ischemic brain is modulated by injury duration and treatment. *Bioengineering & Translational Medicine* (2020) August; doi.org/10.1002/btm2.10175 [14] ****NSF funded research**
32. Liao R.¹, Pon J.², Chungyoun M.², Nance E.* Enzymatic protection and biocompatibility screening of enzyme-loaded polymeric nanoparticles for neurotherapeutic applications. *Biomaterials* (2020) July; 257. doi: 10.1016/j.biomaterials.2020.120238 [14]
31. Chua C., Ho J., Susnjar A., Lolli G., Di Trani N., Pesaresi F., Sizovs A., Zhang M.¹, Nance E., Grattoni A.* Intratumoral nanofluidic system enhances tumor biodistribution of CD40 antibody in triple negative breast cancer. *Advanced Therapeutics* (2020) July; doi: 10.1002/adtp.202000055 [10]
30. Zhang M.¹, Vojtech L., Ye Z.², Hladik F., Nance E.* Quantum dot labeling and visualization of extracellular vesicles. *ACS Applied Nano Materials* (2020) June 15; 7(3):7211-7222. doi: 10.1021/acsanm.0c01553 [16]
29. Liao R.¹, Wood T.R., Nance E.* Superoxide dismutase reduces monosodium glutamate-induced injury in an organotypic whole hemisphere brain slice model of excitotoxicity. *J Biol Eng* (2020) Feb 4; 14:3. doi: 10.1186/s13036-020-0226-8 [19]
28. Curtis C.D.¹, McKenna M.¹, Pontes H.², Toghiani D.², Choe A.², Nance E.* Predicting in situ nanoparticle behavior using multiple particle tracking and artificial neural networks. *Nanoscale* (2019) Nov 28; 11(46):22515-22530. doi: 10.1039/c9nr06327g. [16]

27. Vojtech L., Zhang M.¹, Dave V., Levy C., Hughes S.M., Wang R., Calienes F., Prlic M., **Nance E.**, Hladik F. Extracellular vesicles in human semen modulate antigen-presenting cell function and decrease downstream antiviral T cell responses. *PLOS ONE* (2019) Oct 17; 14(10):e0223901. doi: 10.1371/journal.pone.0223901 [17]
26. Zhang M.¹, Bishop B., Thompson N., Hildahl K.², Dang B.², Mironchuk O.², Chen N.², Aoki R., Holmberg V.*., **Nance E.*** Quantum dot cellular uptake and toxicity in the developing brain: implications for use as imaging probes. *Nanoscale advances* (2019) 1, 3424-3442. doi: 10.1039/C9NA00334G [33]
25. Millik S.C., Dostie A.M., Karis D.G., Smith P.T., Mckenna M.¹, Chan N.¹, Curtis C.D.¹, **Nance E.**, Theberge A.B., Nelson A.* 3D printed coaxial nozzles for the extrusion of hydrogel tubes toward modeling vascular endothelium. *Biofabrication* (2019) Jul 12; 11(4):045009. doi: 10.1088/1758-5090/ab2b4d. [33]
24. Wood T., Moralejo D., Corry K., Snyder J., Traudt C., Curtis C.¹, **Nance E.**, Parikh P., Juul S.* A ferret model of encephalopathy of prematurity, *Developmental Neuroscience* (2018) 40(5-6):475-489. doi: 10.1159/000498968. [6]
23. Curtis C.¹, Toghiani D.², Wong B.³, **Nance E.*** Colloidal stability as a determinant of nanoparticle behavior in the brain. *Colloids and Surfaces B: Biointerfaces* (2018) 170, 673-682. doi: 10.1016/j.colsurfb.2018.06.050. [44]
22. Joseph A.¹, Wood T., Chen C-C.¹, Corry K., Juul S., Snyder J., Parikh P., **Nance E.*** Curcumin-loaded brain penetrating nanoparticles for treatment of neonatal hypoxia-ischemia encephalopathy. *Nano Research* (2018) 11(10): 5670-5688. doi: 10.1007/s12274-018-2104-y. [49]
21. Alnasser Y., Kambhampati S.P., **Nance E.**, Rajbhandari L., Shrestha S., Venkatesan A., Kannan R.M., Kannan S.* Preferential and increased uptake of hydroxyl-terminated PAMAM dendrimers by activated microglia in rabbit brain mixed glial culture. *Molecules* (2018) Apr 27; 23(5). doi: 10.3390/molecules23051025. [29]
20. Vornhagen J., Armistead B., Quach P., Santana-Ufret V., Boldenow E., Alishetti V., Melief C., Ngo L.Y., Whidbey C., Doran K.S., Curtis C.¹, **Nance E.**, Rajagopal L.* Group B streptococcus exploits vaginal epithelial exfoliation for ascending infection. *J. Clinical Investigation* (2018) May 1; 128(5):1985-1999. doi: 10.1172/JCI97043. [46]
19. Zhang C., Mastorakos P., Sobral M., Berry S., Song E., **Nance E.**, Eberhard C.G., Hanes J., Suk J.S. Strategies to enhance the distribution of nanoparticles in the brain. *J. Control Release* (2017) Dec 10; 267:232-239. doi: 10.1016/j.jconrel.2017.07.028. [20]
18. **Nance E.**, Kambhampati S.P., Smith E.S. Zhang Z., Zhang F., Singh S., Johnston M.V., Kannan R.M., Blue M.E., Kannan S.* Dendrimer-mediated delivery of N-acetyl cysteine to microglia in a mouse model of Rett Syndrome. *J. Neuroinflammation* (2017) Dec 19; 14(1):252. doi: 10.1186/s12974-017-1004-5. [66]
17. Smith J., Sprenger K., Liao R.¹, Joseph A.¹, **Nance E.*** Pfaendtner J.* Determining dominant driving forces affecting controlled protein release from polymeric nanoparticles. *Biointerphases* (2017) May 19; 12(2):02D412. doi: 10.1116/1.4983154. [3]
16. Zhang C., **Nance E.**, Mastorakos P., Chisholm J., Berry S., Eberhart C., Tyler B., Brem H., Suk J.S., Hanes J.* Convection enhanced delivery of cisplatin-loaded brain penetrating nanoparticles cures malignant glioma in rats. *J Control. Release* (2017) Oct 10; 263:112-119. doi: 10.1016/j.jconrel.2017.03.007. [90]
15. Williams M., Zhang Z., Drewes J., **Nance E.**, Singh S., Kannan S.* Maternal inflammation results in altered tryptophan metabolism in rabbit placenta and fetal brain. *Developmental Neuroscience* (2017) 39(5):399-412. doi: 10.1159/000471509. [43]
14. **Nance E.*** Brain penetrating nanoparticles for analysis of the brain microenvironment. *Methods Mol. Biol.* (2017) 1570:91-104. doi: 10.1007/978-1-4939-6840-4_6. [16]
13. Zhang F., **Nance E.**, Zhang Z., Jasty V., Mishra M.K., Kambhampati S.P., Burd I., Romero R., Kannan R., Kannan S.* Surface functionality affects the biodistribution and microglia-targeting of intra-amniotically delivered dendrimers. *J Control. Release*, (2016) Sep 10; 237:61-70. doi: 10.1016/j.jconrel.2016.06.046. [27]

12. **Nance E.**, Zhang F., Mishra M.K., Zhang Z., Kambhampati S.P., Kannan R.M.*, Kannan S.* Nanoscale effects in dendrimer-mediated targeting of neuroinflammation. *Biomaterials* (2016) Sep; 101:96-107. doi: 10.1016/j.biomaterials.2016.05.044. [99]
11. Zhang Z., Bassam B., Thomas AG., Williams M., Liu J., **Nance E.**, Rojas C., Slusher BS., Kannan S.* Maternal inflammation leads to impaired glutamate homeostasis and up-regulation of glutamate carboxypeptidase II in activated microglia in the fetal/newborn rabbit brain. *Neurobiol. Dis.* (2016) Oct; 94:116-28. doi: 10.1016/j.nbd.2016.06.010. [48]
10. Zhang F., **Nance E.**, Alnasser Y., Kannan R., Kannan S.* Microglial migration and interactions with dendrimer nanoparticles are altered in the presence of neuroinflammation. *J Neuroinflammation* (2016) Mar 22; 13(1):65. doi: 10.1186/s12974-016-0529-3. [61]
9. **Nance E.**, Porambo M., Mishra M.K., Zhang F., Buelow M., Getzenberg R., Johnston M., Kannan R., Fatemi S-A, Kannan S.* Systemic dendrimer-drug treatment of ischemia-induced neonatal white matter injury. *J Control. Release.* (2015) Sep 28; 214:112-20. doi: 10.1016/j.jconrel.2015.07.009. [88]
8. **Nance E.**, Zhang C., Shih T-Y, Xu Q., Schuster B., Hanes J.* Brain penetrating nanoparticles improve paclitaxel efficacy in malignant gliomas following local administration. *ACS Nano* (2014) Oct 28; 8(10):10655-64. doi: 10.1021/nn504210g. [205]
7. **Nance E.**, **Timbie K.**, Miller W.G., Song J., Louttit C., Klibanov A.L., Shih T-Y, Swaminathan G., Tamargo R.J., Woodworth G., Hanes J., Price R.J.* Noninvasive delivery of stealth, brain-penetrating nanoparticles across the blood-brain barrier using MRI-guided focused ultrasound. *J Control. Release.* (2014) Sep 10; 189:123-132. doi: 10.1016/j.jconrel.2014.06.031. †Controlled Release Society award for best paper of the year [211]
6. Birjiniuk A., Billings B., **Nance E.**, Hanes J., Ribbeck K., Doyle S.P.* Single particle tracking reveals spatial and dynamic organization of the *Escherichia coli* biofilm matrix. *New J Physics* (2014) Aug 27; 16(8):085014. doi: 10.1088/1367-2630/16/8/085014. [57]
5. Lesniak W., Mishra M.K., Jyoti A., Balakrishnan B., Zhang F., **Nance E.**, Romero R., Kannan S., Kannan R.* Biodistribution of Fluorescently-labeled PAMAM Dendrimers in Neonatal Rabbits: Effect of Neuroinflammation. *Mol. Pharmaceutics* (2013) Dec 2; 10(12):4560-71. doi: 10.1021/mp400371r. [107]
4. Xu Q., Boylan N., Suk J., Wang Y-Y, **Nance E.**, Yang J-C, McDonnell P., Cone R., Duh E., Hanes J.* Nanoparticle diffusion in, and microrheology of, the bovine vitreous *ex vivo*. *J Control Release.* (2013) Apr 10; 167(1):76-84. doi: 10.1016/j.jconrel.2013.01.018. †Selected Cover Image [228]
3. **Nance E.**, **Woodworth G.**, Sailor K., Shih T-Y, Swaminathan G., Xiang D., Eberhart C., Hanes J.* A dense poly(ethylene glycol) coating improves penetration of large polymeric nanoparticles within brain tissue. *Sci. Transl. Med.* (2012) Aug 29; 4(149):149ra119. doi: 10.1126/scitranslmed.3003594. **Selected Cover Image [541]
2. Navarette C., Sisson J., **Nance E.**, Allen-Gipson D., Hanes J., Wyatt T.* Particulate matter in cigarette smoke increases ciliary axoneme beating through mechanical stimulation. *J Aerosol. Med. Pulm. Drug Deliv.* (2012) Jun; 25(3):159-68. doi: 10.1089/jamp.2011.0890. [31]
1. Montero C., Lewis D., Johnson M., Connors S., **Nance E.**, Nichols J., Kelly R.* Colocation of genes encoding a tRNA-mRNA hybrid and a putative signaling peptide on complimentary strands in the genome of the hyperthermophilic bacterium *Thermotoga maritima*. *J Bacteriol.* (2006) Oct; 188(19):6802-7. doi: 10.1128/JB.00470-06. [14]

Refereed archival journal publications – reviews and perspective

10. **Joseph A.**^{1*} and **Nance E.*** Nanotherapeutics and the brain. *Annual Reviews in Chemical & Biomolecular Engineering*; (2022) 13:5.1-15.22, doi: 10.1146/annurev-chembioeng-092220-030853
9. **Nance E.***, Pun S.*, Saigal R.*, Sellers D.* Drug delivery to the central nervous system. *Nature Reviews Materials* (2021) doi: 10.1038/s41578-021-00394-w [5]

8. Liao R.¹, Wood T., **Nance E.*** Nanotherapeutic modulation of excitotoxicity and oxidative stress in acute brain injury. *Nanobiomedicine* (2020) doi.org/10.1177/1849543520970819 [1]
7. Helmbrecht H.¹, Joseph A.¹, Zhang M.¹, McKenna M.¹, **Nance E.*** Governing transport principles for nanomedicine applications in the brain. *Current Opinion in Chemical Engineering* (2020) 30; 112-119 doi: 10.1016/j.coche.2020.08.010 [7]
6. Wood T., **Nance E.*** Disease-directed engineering for physiology-driven treatment interventions. *APL Bioengineering* (2019) Oct 23; 3(4):040901. doi: 10.1063/1.5117299 [10]
5. Yellepeddi V, Joseph A.¹, **Nance E.*** Pharmacokinetics of nanotechnology-based formulations in pediatric populations. *Adv. Drug. Del. Rev.* (2019) Nov; 151:44-55. doi: 10.1016/j.addr.2019.08.008 [20]
4. Curtis C.¹, Zhang M.¹, Liao R.¹, Wood T., **Nance E.*** Systems-level thinking for nanoparticle-mediated therapeutic delivery to neurological diseases. *Wiley Interdiscip Rev Nanomed Nanobiotechnol.* (2016) Mar; 9(2). doi: 10.1002/wnan.1422. [†]Selected cover image: Curtis C., Zhang M., Liao R., Wood T. and Nance E.* Cover Image, Volume 9, Issue 2. *WIREs Nanomed Nanobiotechnol*, (2017) 9: n/a, e1463. doi:10.1002/wnan.1463. [30]
3. Woodworth G.*, Dunn A., **Nance E.**, Hanes J., Brem H. Emerging Insights into Barriers to Effective Brain Tumor Therapeutics. *Frontiers NeuroOnc.*, (2014) 4:126. doi: 10.3389/fonc.2014.00126 [140]
2. Kannan R., **Nance E.**, Kannan S., Tomalia D.* Emerging concepts in dendrimer nanomedicine: translational aspects. *J Internal Medicine*, (2014) 276(6): 579-617. doi: 10.1111/joim.12280 [441]
1. Balakrishnan B., **Nance E.**, Johnston M., Kannan S.* Nanomedicine in cerebral palsy. *Int. J Nanomedicine* (2013) 8:4183-4195. doi: 10.2147/IJN.S35979 [35]

Refereed archival journal publications – original research in education and career development

2. Helmbrecht H.¹ and **Nance E.*** Effective Laboratory Education with TEXTILE: Tutorials in ExeprimentalisT Interactive Learning. *Chemical Engineering Education* (2022); doi: 10.18260/2-1-370.660-129820. ****NSF funded research**
1. **Nance E.*** Careers in nanomedicine and drug delivery. *Adv. Drug. Del. Rev.* (2019) Apr; 144:180-189. doi: 10.1016/j.addr.2019.06.009 [23]

BioRxiv preprint

1. McKenna M.¹, Shackelford D.¹, Ferreira Pontes H.², Ball B.K.², Gao T.², **Nance E.*** Multiple particle tracking detects changes in brain extracellular matrix structure and predicts neurodevelopmental age, bioRxiv doi: 10.1101/2020.04.20.050112 *Published in ACS Nano in 2021 [ref 34 in original research section]*[1]

Refereed Editorials

7. **Nance E.*** Clinical agitation prevents sperm agglutination. *Sci. Transl. Med. Editor's Choice* (2018); 11(478), eaaw5323.
6. **Nance E.*** Magnets make target cells more attractive to CRISPR. *Sci. Transl. Med. Editor's Choice* (2018); 10(470), eaaw0520. [1]
5. **Nance E.*** Predicting pathology provides prostate prognostication. *Sci. Transl. Med. Editor's Choice* (2018); 10(462), eaav3886.
4. **Nance E.*** Platelets prefer to be shaken, not stirred. *Sci. Transl. Med. Editor's Choice* (2018), 10(454), eaau7388.
3. **Nance E.*** Ketogenic bugs as epileptic drugs. *Sci Transl. Med. Editor's Choice* (2018), 10(446), eaau0471.
2. **Nance E.*** Nano livers: A sobering Discovery. *Sci Transl. Med. Editor's Choice* (2018), 10(438), eaat4479.
1. **Nance E.*** GO minions – polarize and repair! *Sci. Transl. Med Editor's Choice* (2018), 10(430), eea8967.

Parts of books (chapters in edited books)

1. Filteau J., Butler B., Schimek N., **Nance E.*** (2022) Nano-based probes for the brain extracellular environment., 53-88. doi: 10.1007/978-3-031-11409-0_2
2. **Nance E.***, McKenna M.¹ (2020). *Challenges and barriers. Nanoparticles for Biomedical Applications*, 89–107. doi:10.1016/b978-0-12-816662-8.00007-2 [2]

Books edited

1. Nance, E. Editor, *Engineering Biomaterials for Neural Applications*. 2022. Springer Publishing.

Patents awarded

3. Hanes J., **Nance E.**, Woodworth G. (2019). Rapid diffusion of large polymeric nanoparticles in the mammalian brain. USPTO 10307372
1. Kannan R., Kannan S., **Nance E.**, Blue M., Johnston M.V., Baumgartner W., Zhang F., Wilson M.A., Slusher B. (2017). Dendrimer compositions and use in treatment of neurological and cns disorders. USPTO 15502744

Report of Inventions/Provisional Patents/Patents Filed

3. Helmbrecht H., Nguyen P., Schimek N., Nance E. TEXTILE: Tutorials in EXperimental Interactive Learning. Report of Invention filed (August 2022).
2. Balistreri G., Roumeli E., Nance E. Scalable, sustainable bacteria-cellulose derived nanoparticles for drug delivery. Report of invention filed (September 2022).
1. Nance E., Joseph A., Nyambura C., Pfaendtner J., Wood T. Formulation and efficacy of enzyme-loaded polymeric nanoparticles. Patent Application filed 7/14/2022

MISCELLANEOUS

Other significant research dissemination

Software

1. Curtis C.¹, Rokem A., **Nance E.*** Diff_classifier: Particle tracking parallelization. *Journal Open Source Software* 4(36):989 doi: 10.21105.joss.00989 [10]

News Features, Letters, Editorials – contributing writer, reviewer, or co-author

10. McQuate, S. “Engineering therapies for the pediatric brain.” *UW News*; Online October, 2022
9. Joseph A., “Building a scientific home for nervous system delivery researchers”; *CRS newsletter*; Online October 1, 2021; accessed Feb 18, 2022; <https://www.controlledreleasesociety.org/news/building-scientific-home-nervous-system-delivery-researchers-conversation-focus-group-co>
8. Tay, A. “Writing the perfect recommendation letter.” *Nature Career*, Online: July 20, 2020; accessed July 25, 2020; <https://www.nature.com/articles/d41586-020-02186-8>
7. Snair, M. “PECASE Honoree Elizabeth Nance Highlights the Importance of Collaboration in Nanotechnology”, *NIH Biomedical Beat*, Online: February 27, 2020; accessed April 16, 2020; <https://biobeat.nigms.nih.gov/2019/11/pecase-honoree-elizabeth-nance-highlights-the-importance-of-collaboration-in-nanotechnology/>
6. Deeproose, C. “Dr Elizabeth Nance – The Role of Nanoparticles in Neuroscience.” *Scientia Magazine*, Online: July 12, 2019; accessed April 16, 2020, <https://doi.org/10.33548/SCIENTIA383>
5. Brooks R., Nance E., McKenna M., Shackelford D. “Nanoparticles could help us understand the relationship between structure and function in the brain.” *eScience Institute Research feature*, Online: March 25, 2019; accessed April 16, 2020, <https://escience.washington.edu/nanoparticles-could-help-us-understand-the-relationship-between-structure-and-function-in-the-brain/>

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Websites

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4. Webmaster, website designer, Dr. Thomas Wood Website (2019 – present), <https://www.drragnar.com/>
3. Webmaster, website designer, Women in Chemical Engineering (2016 – present), <https://www.wcheuw.com/>
2. Webmaster, website designer, Nance Lab Research Group Website (2015 – present), <https://www.nancelab.com/>
1. Website designer, Center for Nanomedicine, Johns Hopkins University (2010 – 2011), <https://cnm-hopkins.org/>

Podcasts

8. Series: STEMM 4 Girls. Episode 30 with Prof. Elizabeth Nance, To be Published: Fall 2022, <https://www.youtube.com/channel/UCGNg9fcEL6KieU0tRo1OMXw/videos>
7. Series: All About Her. Episode 16: Dr. Elizabeth Nance, Published December 30, 2021, <https://www.listennotes.com/podcasts/all-about-her-shreya-QUytuaH4RVv/>
6. Series: Let's Talk WChE-USC, Topic: Prof. Elizabeth Nance of UW, Published: April 28, 2021, <https://podcasts.apple.com/us/podcast/prof-elizabeth-nance-of-uw/id1535888464?i=1000519156835>
5. Series: STEM On Fire, Topic: Chemical and Biomolecular Engineering Applied to Nanomedicine, Published: January 13, 2019, <https://stemonfire.com/episodes/71-chemical-and-biomolecular-engineering-applied-to-medicine-elizabeth-nance/>
4. Series: Nourish Balance Thrive, Topic: Women in Science, Published: November 1, 2018, <https://nourishbalancethrive.com/podcasts/nourish-balance-thrive/title-women-science-bridging-gender-gap/>
3. Series: Nourish Balance Thrive, Topic: Nanotechnology: The Big Impact of Tiny Particles, Published: October 2, 2018, <https://nourishbalancethrive.com/podcasts/nourish-balance-thrive/nanotechnology-big-impact-tiny-particles/>
2. Series: STEM-Talk: The Most Interesting People in The World, Topic: Nanotechnology to understand and treat brain diseases, Published: August 28, 2018, <https://www.ihmc.us/stemtalk/episode-71/>
1. Series: Nanovation, Topic: Why I'm fascinated by diffusion, Published March 16, 2018, <http://www.fillerlab.com/nanovation/archive/35>

OTHER SCHOLARLY ACTIVITY

Invited External Departmental & Industry Seminars - †Presenting author

21. Nance E.† Nanotherapeutics for neonatal and pediatric brain disease. New York University, Department of Chemical & Biomolecular Engineering; New York City, NY; December 9, 2022
20. Nance E.† Nanotherapeutics for neonatal and pediatric brain disease. University of Florida, Department of Pharmacy; Gainesville, FL; November 30, 2022

19. Nance E.† Integrating data sciences into nanomedicine and neuroscience research. University of Florida, Department of Chemical Engineering; Gainesville, FL; November 29, 2022
18. Nance E.† Brain Imaging in the Bay Symposia; San Francisco, CA; November 5, 2022.
17. Nance E.† Integrating data sciences into nanomedicine and neuroscience research. University of California, Santa Barbara, Department of Chemical Engineering; Santa Barbara, CA; October 17, 2022
16. Nance E.† Nanotherapeutics for neonatal and pediatric brain disease. Princeton University, Department of Chemical & Biological Engineering Seminar Series; Princeton, NJ; October 12, 2022
15. Nance E.† Closing the technology gap for pediatric brain disease. University of California, Santa Barbara, Department of Biological Engineering; Santa Barbara, CA; March 8, 2022
14. Nance E.† Closing the technology gap for pediatric brain disease. North Carolina State University Chemical & Biological Engineering Seminar Series; Raleigh, NC; December 2, 2021
13. Nance E.† No brain left behind: closing the technology gap for pediatric brain disease; Purdue University Davidson School of Chemical Engineering Mellichamp Lecture; West Lafayette, IN; October 5, 2021.
12. Nance E.† Nanotechnologies for understanding and treating pediatric brain disease. University of California-Berkeley Department of Chemical and Biomolecular Engineering seminar series; Hosted Virtually; March 17, 2021.
11. Nance E.† Quantitative fluorescent image analysis pipelines: bridging experimental work to data sciences. FAMU-FSU Department of Chemical Engineering seminar series, Tallahassee FL; Hosted Virtually; February 26, 2021
10. Nance E.† Nanotechnology-based probes of structure-function in living tissue. Clemson University Department of Chemical Engineering seminar series, Clemson SC; Hosted Virtually; Sept 11, 2020
9. Nance E. † Nano-directed therapeutics for neonatal brain injury. University of Queensland (Australia) Centre for Clinical Research Seminar Series, Brisbane, Australia; Hosted Virtually; July 8, 2020
8. Nance E.† Nanotechnology-based probes of structure-function in living tissue. Johns Hopkins University School of Pharmacy Seminar Series, Baltimore MD; January 8, 2020
7. Nance E.† Integrating nanotherapeutic design and data sciences for treating neurological disease. Novo Nordisk Data Science Seminar Series, Seattle WA; June 5, 2019
6. Nance E.† Nanotherapeutics for neuroprotection in the injured brain. University of Colorado Department of Chemical and Biological Engineering, Boulder CO; October 11, 2018
5. Nance E.† Nanotherapeutics for neuroprotection in the injured perinatal brain. Houston Methodist Department of Nanomedicine Seminar Series, Houston TX; July 27, 2018
4. Nance E.† Nano-based probes of the brain microenvironment: therapeutic implications for the injured brain. UC Davis Chemical Engineering Seminar series, Davis CA; April 19, 2018
3. Nance E.† Scalable imaging technologies to analyze transport in the brain. Harvard University School of Engineering Arts & Sciences (SEAS) Seminar Series, Boston MA; April 18, 2017 *Invited by SEAS students
2. Nance E.† Nanotherapeutics for Neurological Diseases. University of Oslo Departments of Physiology and Neuroscience, Oslo Norway, November 6, 2014
1. Nance E.† Nanotherapeutics for Brain Diseases. North Carolina State University Departments of Chemical Engineering and Biomedical Engineering, Raleigh NC; February 17, 2014

Invited Conference & Symposia Talks - †Presenting author

21. Nance E.† Designing nanotherapeutics for modulating pathological processes in the brain. Brain Imaging in the Bay Conference. San Francisco, CA; November 5, 2022
20. Nance E.†, Nguyen P.†, Floryanzia S.† Nanotechnology and it's potential for treating brain disease. Northwest Scientific Writers Association, Seattle, WA; September 15, 2022.
19. Nance E.† Nanotherapeutics for neonatal and pediatric brain disease. Controlled Release Society Annual Meeting, Plenary Talk, Montreal, Canada; July 13, 2022

18. Nance E.† Imaging cellular and extracellular changes in the developing brain microenvironment. 13th Hershey Conference on Developmental Brain Injury, Union WA; June 2, 2022
17. Nance E.† Building nanotherapeutic databases. AIChE Annual Meeting, Futures Symposia; Boston MA; November 9, 2021, *Award recipient
16. Nance E.† Engineering nano-based neurotherapeutics for pediatric brain disease. Materials Research Society Annual Meeting, Plenary Talk; Hosted Virtually; April 20, 2021.
15. Nance E.†, Miller B., Garana B. Creating an inclusive chemical engineering community for Womxn through allyship and advocacy. AIChE Annual Meeting; Virtual, November 16, 2020
14. Nance E.† Engineering nanomedicine to overcome biological barriers for improved treatment in pediatric brain diseases. AIChE Annual Meeting, Plenary Talk; Virtual, November 16, 2020
13. Nance E.† Bridging the gap between nanoparticle synthetic and biological identity. University of Maryland NanoDay; College Park, MD; May 20, 2020 **rescheduled to May 2021 due to covid-19*
12. Nance E.† Nanotechnology-based probes of structure-function in living tissue. AIChE Annual Meeting, Plenary Talk, Orlando FL; November 12, 2019
11. Nance E.† Imaging neuroinflammation in the developing brain - implications for therapeutic intervention. Center on Human Development and Disability, Biological Basis for Autism Symposia, Seattle WA; May 10, 2019
10. Nance E.† Nanotherapeutics for neuroprotection in the developing brain. AIChE Annual Meeting, Pittsburgh PA.; October 29, 2018
9. Nance E.† High-throughput organotypic brain slice platform for evaluation of quantum-dot toxicity and cellular uptake. Interdisciplinary Center for Exposures, Diseases, Genomics and Environment Annual Retreat. Seattle WA; October 8, 2018
8. Nance E.† Tackling brain disease: leveraging the power of connection across scale and fields. Association of Women in Science Awards Banquet, Seattle WA; June 14, 2018 *Award recipient
7. Nance E.† Nano-based probes of the diseased brain: directing therapeutic intervention. BioNanoMed Annual Meeting, Graz Austria; April 26, 2018
6. Nance E.† Overcoming barriers in the brain: the power of connection across scale and fields. NANOMED-Ocuther Mini Symposium, Netherlands; April 10, 2018 *Award recipient
5. Nance E.† Nano-directed therapeutics for neonatal brain injury. 39th Western Conference on Perinatal Research; Indian Wells, CA; January 11, 2018 *Keynote talk
4. Nance E.† Probing the brain microenvironment. Hamamatsu National Business Meeting; Brunswick, NJ; September 13, 2017
3. Nance E.† Scalable imaging technologies to analyze transport in the brain. Harvard University School of Engineering Arts & Sciences (SEAS) Seminar Series, Boston MA; April 18, 2017 * Invited Talk by SEAS students
2. Nance E.† Breaking down barriers: the power of connecting. Seattle University, Clare Boothe Luce Undergraduate Research Symposium, Seattle WA; August 23, 2016 *Keynote speaker
1. Nance E.† Specializing in not specializing: communicating at the scientific interfaces. TEDx University of Washington, Seattle WA.; May 5, 2016

Invited Clinical Grand Round Talks - †Presenting author

5. Nance E.† Nanotherapeutic modulation of inflammation and oxidative stress in neonatal brain injury. Distinguished Lecture Series in Cardiovascular Medicine, Seattle WA; January 21, 2019
4. Nance E.† Nanotherapeutics for neuroinflammation. UW Neurology Grand Rounds; Seattle, WA; March 1, 2018
3. Nance E.†, Hanes J., Kannan R., Kannan S. Nanotherapies for Neuroinflammation and Neuroprotection. University of Maryland Grand Rounds, Department of Pediatrics; Baltimore, MD; June 3, 2015

2. Nance E.†, Hanes J., Kannan R., Kannan S. Nanotechnology for Neurological Disorders. University of Maryland Department of Shock, Trauma, and Anesthesiology, Baltimore MD; December 9, 2014
1. Nance E.†, Hanes J., Kannan R., Kannan S. Nanotherapeutics for Brain Diseases. University of Pennsylvania Department of Anesthesiology and Critical Care Medicine, Philadelphia PA; March 25, 2014

Faculty Candidate Talks- †Presenting author

12. Nance E.†, Hanes J., Kannan R., Kannan S. Nanotherapeutics for Neurological Disorders. University of Washington (Seattle), Seattle WA; February 26, 2015
11. Nance E.†, Hanes J., Kannan R., Kannan S. Nanotherapeutics for Neurological Disorders. Harvard University, Cambridge, MA; February 12, 2015
10. Nance E.†, Hanes J., Kannan R., Kannan S. Nanotherapeutics for Neurological Disorders. Johns Hopkins University, February 10, 2015
9. Nance E.†, Hanes J., Kannan R., Kannan S. Nanotherapeutics for Neurological Disorders. University of Utah, Salt Lake City, UT; February 5, 2015
8. Nance E.†, Hanes J., Kannan R., Kannan S. Nanotherapeutics for Neurological Disorders. University of Minnesota, Minneapolis MN; February 3, 2015
7. Nance E.†, Hanes J., Kannan R., Kannan S. Nanotherapeutics for Neurological Disorders. Northwestern University, Evanston, IL; January 29, 2015
6. Nance E.†, Hanes J., Kannan R., Kannan S. Nanotherapeutics for Neurological Disorders. Duke University, Durham, NC; January 27, 2015
5. Nance E.†, Hanes J., Kannan R., Kannan S. Nanotherapeutics for Neurological Disorders. University of California San Diego, La Jolla, CA; January 22, 2015
4. Nance E.†, Hanes J., Kannan R., Kannan S. Nanotherapeutics for Neurological Disorders. University of Virginia, Charlottesville VA; January 15, 2015
3. Nance E.†, Hanes J., Kannan R., Kannan S. Nanotherapeutics for Neurological Disorders. Washington University, St Louis MO; January 7, 2015
2. Nance E.†, Hanes J., Kannan R., Kannan S. Nanotherapeutics for Neurological Disorders. University of North Carolina-Chapel Hill, Chapel Hill, NC; December 15, 2014
1. Nance E.†, Hanes J., Kannan R., Kannan S. Nanotherapeutics for Neurological Disorders. North Carolina State University, Raleigh NC; December 14, 2014

Contributed presentations - †Presenting author, footnotes indicate ¹graduate students, ²undergraduate students, and ³high school students mentored by **E. Nance**.

89. Helmbrecht H.¹†, **Nance E.** Image processing and immunofluorescent cell imaging: current challenges and opportunities. AIChE Annual Meeting, Phoenix, AZ; November 17, 2022.
88. Nguyen N.P.¹†, **Nance E.** Brain-derived extracellular vesicles: molecular probes and therapeutic vehicles in the neonatal ischemic brain. AIChE Annual Meeting, Phoenix, AZ; November 16, 2022.
87. Butler B.¹†, **Nance E.** Probing brain structure-function relationships in neurodegeneration using organotypic whole hemisphere slice models and multiple particle tracking. AIChE Annual Meeting, Phoenix, AZ; November 16, 2022.
86. Voke E.†, Dolph K., Xu N.¹, **Nance E.**, Landry M. The influence of surfactants on protein-corona composition of blood-brain penetrating nanoparticles. AIChE Annual Meeting, Phoenix, AZ; November 15, 2022.
85. Xu N.¹†, Wong M.², **Nance E.** Neonatal pharmacokinetics and biodistribution of polymeric nanoparticles. AIChE Annual Meeting, Phoenix, AZ; November 15, 2022.

84. Filteau J.^{1†}, McKenna M.¹, **Nance E.** Organotypic whole hemisphere brain slice models to study the effect of age and oxygen-glucose deprivation on extracellular properties. AICHE Annual Meeting, Phoenix, AZ; November 15, 2022.
83. Helmbrecht H.¹, Decker K.², Lin T-J.², Janakiraman S., Onodera M., **Nance E.** Analysis of microglia morphology across different neuroinflammatory rat models. AICHE Annual Meeting, Phoenix, AZ; November 14, 2022.
82. Nguyen N.P.¹, Helmbrecht H.¹, Ye Z.², Adebayo T.², Hashi N.², Doan M-A., Nance E. Brian tissue derived extracellular vesicle mediated therapy in the neonatal ischemic brain. Controlled Release Society Annual Meeting, Montreal CA; July 13, 2022.
81. Decker K.², Helmbrecht H.¹, Nance E. Analytical investigation of shape features of microglia exposed to oxygen-glucose deprivation conditions. UW Mary Gates Undergraduate Research Symposium, Seattle WA; May 20, 2022.
80. Lin, T.J.², Helmbrecht H.¹, Nance E. Incorporating visually aided morpho-phenotyping imaging recognition into robust microglial shape analysis. UW Mary Gates Undergraduate Research Symposium, Seattle WA; May 20, 2022.
79. Lin, T.J.², Helmbrecht H.¹, Nance E. Incorporating visually aided morpho-phenotyping imaging recognition into robust microglial shape analysis. AICHE Pacific Northwest Student Regional Conference, Seattle WA; April 21, 2022.
78. Wood T.R., Moralejo D., Dotson O.¹, Rios Sigler A.², Corry K., Kolnik S.E., White O., Farid L., Brandon O., McKenna M.¹, Nguyen N.P.¹, Juul S.E., **Nance E.** Region-specific synergism of high-dose azithromycin and erythropoietin in an extremely preterm ferret model of oxygen-glucose deprivation. Pediatric Academic Society Annual Meeting; Denver CO; May 2022.
77. Filteau J.^{1†} and **Nance E.** Elucidating neuron-glia interactions in a whole-hemisphere brain slice model of neonatal hypoxia-ischemia. AICHE Annual Meeting, Boston MA; November 10, 2021
76. Helmbrecht H.^{1†} and **Nance E.** Textile: Tutorials for experimentalist interactive learning. AICHE Annual Meeting. Boston MA; November 9, 2021
75. Helmbrecht H.^{1†} and **Nance E.** Enhancing Insight to Individual and Population-Based Microglial Reactivity with Image Analysis. AICHE Annual Meeting. Boston MA; November 8, 2021
74. Helmbrecht H.,^{1†} Joseph A.,¹ Liao R.,¹ Xu N.,¹ **Nance E.** Data management schema for effective nanoparticle formulation for probing and treating neurological disease. AICHE Annual Meeting. Boston MA; November 8, 2021
73. Joseph A.^{1†}, Laio R.¹, Beebout D., Bondurant D., **Nance E.** Catalase-loaded polymeric nanoparticles for neuroprotection after hypoxic-ischemic injury. CRS Annual Meeting; virtual, June 28, 2021
72. Ball B.,^{2†} McKenna M.,¹ **Nance E.** A Fluorescence-based Approach for Characterizing Perineuronal Net Morphology and Quantifying Changes that Occur Throughout Neurodevelopment and into Adulthood; UW Undergraduate Research Symposium; virtual; May 21, 2021
71. Janakiraman S.,^{2†} Helmbrecht H.,¹ Nance E. Analysis of Microglial Morphology in Ischemic Brain Injury; UW Undergraduate Research Symposium; virtual; May 21, 2021
70. Nyambura C.^{1†}, Sampath J., **Nance E.**, Pfaendtner J. Exploring structures and dynamics of PLGA-based materials in solvents relevant to nanoparticle formulation. AICHE Annual Meeting; Virtual; November 20, 2020
69. Helmbrecht H.^{1†}, **Nance E.** Ffiber: Framework for fluorescent neuroimaging based experimental routines. AICHE Annual Meeting; Virtual; November 18, 2020
68. Liao R.^{1†}, **Nance E.** Enzymatic protection and biocompatibility screening of enzyme-loaded polymeric nanoparticles for neurotherapeutic applications. AICHE Annual Meeting; Virtual; November 17, 2020
67. Joseph A.^{1†}, Motchoffo Simo G.², Gao T.², Alhindi N.², **Nance E.** Surfactant effects on nanotherapeutic fate within the brain. AICHE Annual Meeting; Virtual; November 17, 2020

66. Filteau J.¹†, Liao R.¹, Joseph A.¹, **Nance E.** Organotypic brain slices as a platform for measuring response to biological stimuli. AICHE Annual Meeting; Virtual; November 16, 2020
65. McKenna M.¹†, **Nance E.** Multiple particle tracking detects changes in brain extracellular matrix structure. AICHE Annual Meeting; Virtual; November 16, 2020
64. Helmbercht H.¹†, Joseph A.¹, Zhang M.¹, **Nance E.** Application of a robust Framework for neuroImaging Based Experimental Routines (FIBER) for integrating domain and data science. Academic Data Science Alliance Annual Meeting; Virtual; October 16, 2020
63. Helmbrecht H.¹†, **Nance E.** Jupyter Notebook as a Medium. for Experimentalist and Data Scientist Collaboration in neuroimaging. JupyterCon2020; Virtual (pre-recorded talks); October 12-16, 2020
62. Rios A.²†, Joseph A.¹, **Nance E.** Nanoparticle Delivery of Protein Therapeutics to Treat Neuronal Death in Hypoxic Ischemic Encephalopathy. STAR Undergraduate Research Symposium; Virtual; August 19, 2020
61. Helmbrecht H.¹, Nance E. FIBER: Frameworks for neuroImage Based Experimental Routines with Python and Jupyter Notebook. SciPy 2020; Virtual; July 7, 2020
60. Toghani D.²†, Hildahl K.¹, **Nance E.** Does Early-in-Life Neuroinflammation Affect the Susceptibility to a Second Hit Stimulus. UW Undergraduate Research Symposium; Seattle, WA; May 15, 2020 *Virtual presentation
59. Pontes H.²†, McKenna M.¹, **Nance E.** Characterizing Changes in Brain Extracellular Matrix in a Whole Hemisphere Brain Slice Model of Neonatal Brain Injury. UW Undergraduate Research Symposium; Seattle, WA; May 15, 2020 *Virtual presentation
58. Simo G.²†, Joseph A.¹, Gao T.², **Nance E.** Evaluation of Surfactant Effects on Nanoparticle Toxicity in the Brain Microenvironment. UW Undergraduate Research Symposium; Seattle, WA; May 15, 2020 *Virtual presentation
57. Zhang M.¹†, Ye Z.², Vojtech L., **Nance E.** Quantum Dot-Based Probes for Characterizing Neuroinflammation and Tracking Extracellular Vesicles in the Developing Brain. UW Biomaterials Seminar, Seattle WA; February 27, 2020
56. Liao R.¹†, Pon J.², Chungyoun M.², **Nance E.** Improving Enzymatic Cargo Activity and Biocompatibility of Polymeric PLGA-PEG Nanoparticles for Treating Glutamate Excitotoxicity. UW Biomaterials Seminar; Seattle, WA; January 23, 2020
55. Joseph A.¹†, Simo G.², Gao T.², **Nance E.** Effect of surfactant size and structure on biodegradable nanoparticle interaction with the brain microenvironment. Society of Biomaterials UW Chapter Biomaterials Day; Seattle, WA; December 10, 2019
54. Liao R.¹†, Pon J.², Chungyoun M.², **Nance E.** Detoxifying PLGA-PEG polymeric nanoparticles for improved biocompatibility in drug delivery applications. Society for Biomaterials UW Chapter Biomaterials Day; Seattle, WA. December 10, 2019
53. Liao R.¹†, **Nance E.** The prevalence of oxidative stress in nanotherapeutic development against glutamate excitotoxicity. AICHE 2019 Annual Meeting; Orlando, FL; November 12, 2019
52. Nyambura C.¹†, **Nance E.**, Pfaendtner J. Varying PLGA and PEG oligomer extension reveals favorable protein/polymer interactions critical to drug loading of PLGA-PEG Nanoparticles. AICHE AfroBiotech; Atlanta GA; October 29, 2019
51. Simo G.²†, Joseph A.¹, Gao T.², **Nance E.** Evaluation of Surfactant Effects on Nanoparticle Toxicity in the Brain Microenvironment. Future Leaders of Chemical Engineering at NCSU; Raleigh, NC; October 28, 2019
50. Zhang M.¹†, Vojtech V., **Nance E.** Quantum Dot Labeling and Tracking of Extracellular Vesicles. BMES Annual Meeting; Philadelphia PA; October 18, 2019
49. Adebayo T.²†, Zhang M.¹, **Nance E.** Quantum Dot Toxicity and Intracellular Uptake on BV-2 Cells. UW GenOM Project ALVA Program Oral Presentation and Closing Ceremony; Seattle WA; August 21, 2019

48. Simo G.^{2†}, Joseph A.¹, Gao T.², **Nance E.** Evaluation of Surfactant Effects on Nanoparticle Toxicity in the Brain Microenvironment. REU in Data-enabled Science and Engineering; Seattle, WA; August 19, 2010
47. Holloway J.^{3†}, Liao R.¹, **Nance E.** Culturing effects on brain slice viability, inflammation, and oxidative stress responses. STEMprep Symposium; Seattle, WA; August 7, 2019
46. McKenna M.^{1†}, Pontes H.², Curtis C.¹, **Nance E.** Probing Extracellular Matrix Structural Changes in Organotypic Rat Brain Slices using Multiple Particle Tracking. Society for Biomaterials Annual Meeting; Seattle WA; April 4, 2019
45. Liao R.^{1†}, **Nance E.** Antioxidant-loaded brain penetrating nanoparticles for the treatment of excitotoxicity. 11th Graduate Student Symposium at UW Chemical Engineering; Seattle, WA; September 20, 2018
44. Mallya M.^{3†}, Liao R.¹, **Nance E.** Characterizing mRNA expression in whole hemisphere brain slice models of excitotoxicity and neuroinflammation. STEMprep Symposium; Seattle, WA; August 9, 2018
43. Hildahl K.^{2†}, Zhang M.¹, Nance E. Characterization of quantum dot toxicity for potential use as biomarker in brain injury. UW Undergraduate Research Symposium; Seattle, WA; May 18, 2018
42. Joseph A.¹, Wood T., Chen C.-C.¹, Corry K., Snyder J., Juul S., Parikh P., **Nance E.**† Curcumin-loaded polymeric nanoparticles for the treatment of neonatal hypoxic-ischemic encephalopathy. Pediatric Academic Societies Annual Meeting, Toronto, CAN; May 6, 2018
41. McKenna M.^{1†}, **Nance E.** Dynamic modeling of extracellular matrix effects on nanotherapeutics in the brain. UW Biomaterials Seminar Series; Seattle, WA; May 3, 2018
40. **Nance E.**†, Toghiani D.² Probing the brain using nanotechnology - directing better treatment for brain diseases. UW College of Engineering Admitted Student Preview Day, Seattle WA; April 21, 2018
39. Joseph A.^{1†}, Wood T., Chen C.-C.¹, Corry K., Snyder J., Juul S., Parikh P., **Nance E.** Curcumin-loaded brain penetrating nanoparticles for the treatment of neonatal brain injury. UW Biomaterials Seminar Series; Seattle, WA; March 8, 2018
38. **Nance E.**† Breaking down barriers: the power of connection. UW Maple Hall Engineering Event; Seattle WA; November 8, 2017
37. Zhang M.^{1†}, Dang B.², Hildahl K.², Bishop B., Aoki R., Thompson N., Holmberg V., **Nance E.** Quantum dot-based probes of the brain microenvironment: stability and toxicity. AIChE Annual Meeting; Minneapolis, MN; November 1, 2017
36. Liao R.^{1†}, Panlilio C.², Garana B.², **Nance E.** Enzyme-encapsulating polymeric nanoparticles for treating glutamate excitotoxicity. AIChE Annual Meeting; Minneapolis, MN; October 31, 2017
35. Sackeyfio S.^{3†}, Liao R.¹, **Nance E.** Formulation of catalase encapsulating nanoparticles by protein nanoprecipitation. STEMprep Symposium; Seattle, WA; August 11, 2017
34. Mallya M.^{3†}, Joseph A.¹, **Nance E.** The Evaluation of Various Surfactants on PLGA and PLGA-PEG Nanoparticles. Seattle, WA. STEMprep Symposium; Seattle, WA; August 11, 2017
33. Dang B.^{2†}, Zhang M.¹, Hildahl K.², **Nance E.** The role of surface chemistry in cellular uptake of quantum dots in the developing brain. UW Undergraduate Research Symposium; Seattle WA; May 19, 2017
32. Sullivan H.^{2†}, Bennett P.², **Nance E.** Glial cell characterization in an mGluR5 knockout rat model with hallmarks of autism spectrum disorders. UW Undergraduate Research Symposium; Seattle, WA; May 19, 2017
31. **Nance E.**† WiSE - No Ceiling. No Limit. UW WiSE Spring Welcome; Seattle, WA; May 6, 2017
30. Zhang M.^{1†}, **Nance E.** Quantum dot-based probes of neuroinflammation. UW Biomaterials Seminar Series; Seattle, WA; May 2, 2017
29. Curtis C.^{1†}, **Nance E.** Particle behavior in complex microenvironments: Characterization of nanoparticles in cerebrospinal fluid. UW Biomaterials Seminar Series; Seattle, WA; March 2, 2017
28. Liao R.^{1†}, **Nance E.** Enzyme-encapsulating polymeric nanoparticles for treatment of glutamate excitotoxicity. UW Biomaterials Seminar; Seattle, WA; December 1, 2016

27. Sackeyfio S.^{3†}, Liao R., **Nance E.** Development of a brain ex vivo glutamate excitotoxicity model. STEMprep Symposium; Seattle, WA; August 5, 2016
26. **Nance E.**† Specializing in not specializing: communicating at the scientific interfaces. TEDx University of Washington; Seattle WA.; May 5, 2016
25. **Nance E.**† “We are WiSE”. Women in Science and Engineering 25th Annual Meeting Conference; Seattle WA; February 27, 2016 **Keynote Panelist
24. **Nance E.**† Applications of Nanotechnology in Life Sciences. Association of Women in Science Conference; Seattle WA; December 16, 2015 *Keynote Panelist
23. Wood T.†, **Nance E.** A systems analysis approach for insulin resistance. Health Unplugged; London, UK; October 31, 2015
22. **Nance E.**† Nanotechnology: Small stuff with big impact. Aspen Institute Spotlight Health Festival; Aspen CO; June 26, 2015

Contributed presentations from PhD and Postdoctoral work - †Presenting author

21. Zhang Z.†, Zhang F., Kambhampati S., Alt J., **Nance E.**, Rojas C., Slusher B., Kannan R., Kannan S. Dendrimer improves GCPII inhibitor efficacy in decreasing neuroinflammation and glutamate excitotoxicity in a rabbit model of cerebral palsy. 16th International Nanomedicine and Drug Delivery Symposium; Baltimore, MD; September 16, 2016
20. Zhang C.†, Mastorakos P., Sobral M., Berry S., Song E., **Nance E.**, Suk J.S., Hanes J. Defining Essential Considerations to Achieve Optimal, Local Nanocarrier Delivery to the Brain. 13th International Nanomedicine and Drug Delivery Symposium; Seattle, WA; September 18, 2015
19. Timbie K.†, Zhang C., **Nance E.**, Song J., Miller W., Hanes J., Price R.J. (2015). Ultrasound mediated delivery of brain-penetrating nanoparticles across the blood-tumor barrier. Current and Future Applications of Focused Ultrasound - 4th International Symposium; May 31, 2015
18. Zhang C.†, **Nance E.**, Mastorakos P., Berry, S., Suk J.S., Hanes J. Cisplatin Nanoparticles for Malignant Glioma. 9th Annual Nano-Bio Symposium, Institute of Biotechnology; Baltimore, MD; May 8, 2015
17. **Nance E.**† Porambo M., Zhang F., Mishra M., Fatemi A., Johnston M., Kannan R., Kannan S. Dendrimer-mediated delivery for perinatal brain injury. American Institute of Chemical Engineers Annual Meeting, Atlanta GA; November 16, 2014 *Faculty Candidate
16. Zhang C.†, **Nance E.**, Mastorakos P., Chisholm J., Berry S., Suk J., Hanes J. Improving the Therapeutic Relevancy of Cisplatin for Malignant Gliomas Using Nanotechnology. Biomedical Engineering Society Annual Meeting; San Antonio, TX; October 24, 2014
15. **Nance E.**† Neuropathophysiology-based engineering. Biomedical Engineering Society Annual Meeting; San Antonio, TX; October 22, 2014 *Faculty Candidate
14. Timbie K.†, Zhang C., **Nance E.**, Song J., Miller W., Hanes J., Price R. Ultrasound-mediated delivery of brain-penetrating nanoparticles across the blood-tumor barrier. Focused Ultrasound – 4th International Symposium; Bethesda, MD; October 8, 2014
13. Zhang C.†, **Nance E.**, Mastorakos P., Chisholm J., Berry S., Hanes J. Nanotechnology strategies for Improving Cisplatin Treatment of Malignant Gliomas. 12th International Nanomedicine & Drug Delivery Symposium; Chapel-Hill NC; October 8, 2014
12. **Nance E.**†, Zhang Z., Zhang F., Mishra M., Porambo M., Fatemi A., Johnston M., Kannan R., Kannan S. Dendrimer-mediated therapy for perinatal brain disease. Burrough’s Wellcome Fund Interfaces Symposium; La Jolla, CA; October 2, 2014
11. Zhang C.†, **Nance E.**, Mastorakos P., Chisholm J., Berry S., Hanes J. Densely PEG Coated Cisplatin Nanoparticles for Treatment of Malignant Gliomas. Controlled Release Society Annual Meeting; Chicago IL; July 15, 2014

10. **Nance E.**†, Zhang Z., Zhang F., Mishra M., Porambo M., Fatemi A., Johnston M., Kannan R., Kannan S. Dendrimer-mediated nanotherapeutics for pediatric brain disease. 9th Hershey Conference on Developmental Brain Injury; St Michael's, MD; June 6, 2014
9. Zhang Z. †, **Nance E.**, Mishra M., Zhang F., Alnasser Y., Stathis M., Rojas C., Slusher B., Kannan R., Kannan S. Glutamate homeostasis in maternal inflammation induced brain injury. Pediatric Academic Societies annual meeting; Vancouver, CAN; May 4, 2014
8. Timbie K.†, **Nance E.**, Zhang C., Miller M., Song J., Hanes J., Price R. Ultrasound-Mediated Nanoparticle Delivery Across the Blood-Brain Barrier. International Society of Therapeutic Ultrasound; Las Vegas, NV; April 3, 2014
7. **Nance E.**†, Zhang F., Mishra M., Kannan R., Kannan S. Mechanisms of nanoparticle uptake in neuroinflammation induced pediatric brain injury. Society of Critical Care Medicine 43rd Critical Care Congress. *Annual Scientific Award Winner; San Francisco; January 10, 2014
6. Timbie K.†, Burke C., **Nance E.**, Woodworth G., Miller G.W., Hanes J., Price R.J. Ultrasound-targeted delivery of systemically administered therapeutic nanoparticles. 166th Meeting of the Acoustical Society of America; San Francisco, CA; December 3, 2013
5. **Nance E.**†, Kannan R., Zhang F., Mishra M., Balakrishnan B., Kannan S. Dendrimer- based therapeutic delivery for cerebral palsy: mechanism of nanoparticle uptake. AIChE Annual Meeting; San Francisco, CA; November 3, 2013
4. Timbie K.†, **Nance E.**, Miller W., Burke C., Klibanov S., Hanes J., Price R. Controlling nanoparticle delivery across the blood-brain barrier using MR guided focused ultrasound. BMES Annual Meeting; Seattle, WA; September 27, 2013
3. **Nance E.**†, Zhang C, Shih T-Y, Hanes J. Brain-penetrating nanoparticles improve efficacy against gliosarcomas. BMES Annual Meeting; Seattle, WA; September 26, 2013
2. Xu Q.†, Boylan N., Suk J., Wang Y.-Y., **Nance E.**, Yang J-C, McDonnell P., Cone R., Duh E., Hanes J. Nanoparticle diffusion in the vitreous for ocular drug delivery and gene therapy. AAPS Annual Meeting; San Antonio, TX; November 10, 2013 * Innovation in Biotechnology Award Recipient
1. **Nance E.**†, Shih T-Y, Zhang C., Xu Q., Woodworth G., Hanes J. Biodegradable brain-tissue penetrating nanoparticles. BMES Annual Meeting; Atlanta, GA; October 27, 2012

Conference Poster presentations are in Appendix A.

Professional society memberships.

American Institute of Chemical Engineers	2012 – present
Biomedical Engineering Society	2013 – present
Society for Neuroscience	2013 – present
Pediatric Academic Society	2014 – present
Controlled Release Society	2015 – present

GRADUATE STUDENTS

Chaired Doctoral Degrees

6. Chris Nyambura, Ph.D. in Chemical Engineering
Committee Co-Chair (Dr. Jim Pfaendtner Co-Chair)
Awards: Top Scholar; Jeet and Janice Bindra Endowed Graduate Fellowship
Thesis title: *Rational design of protein-loaded polymeric nanoparticles: a computational and experimental approach*

Defense date: August 8, 2022

5. Michael McKenna, Ph.D. in Chemical Engineering
Committee Chair
Awards: ARCS Fellow; Thomas G. Thompson Endowed Fellowship Recipient
Thesis title: *Establishing, applying, and enhancing a multiple particle tracking technique for characterization of the brain extracellular environment*
Defense date: October 21, 2021
Current Employer: Nanostring Technologies, Seattle, WA

4. Andrea Joseph, Ph.D. in Chemical Engineering
Committee Chair
Awards: NIH F31 Fellow, NSF GRFP Honorable Mention, 2020 Husky 100 Recipient
Thesis title: *Biodegradable polymeric nanoparticles for neuroprotection in neonatal brain injury*
Defense date: May 21, 2021
Current Employer: Postdoctoral fellow, UPenn; Advisor: Michal Elovitz, M.D.

5. Mengying Zhang, Ph.D. in Molecular Engineering
Committee Chair
Thesis title: *Quantum dot probes for neuroimaging and visualization of extracellular vesicles*
Defense date: September 21, 2020
Current Employer: Biogen Vector Engineering Division, Boston, MA

2. Rick Liao, Ph.D. in Chemical Engineering
Committee Chair
Awards: D.D. and Sylvia M. Drowley Fellowship
Thesis title: *Antioxidant-loaded nanoparticles for the treatment of excitotoxicity in neurological disease*
Defense date: July 1, 2020
Current Employer: Postdoctoral fellow, Harvard University; Advisor: Samir Mitragotri

1. Chad Curtis, Ph.D. in Chemical Engineering, Advanced Data Science Option
Committee Chair
Awards: ITHS TL-1 Fellow
Thesis title: *Trajectory Features as surrogate measures of the nanoparticle-microenvironment interaction space*,
Defense date: June 26, 2019
Current Employer: Assistant Professor of Data Science, Nevada State University

Current Doctoral Students

10. Nels Schimek, Ph.D. student in Chemistry
Committee Chair

9. Zheyu Ruby Jin, Ph.D. student in Chemical Engineering
Committee Chair, Passed qualifying exam Oct 3, 2022

8. Hui Emily Du, Ph.D. student in Chemical Engineering
Committee Chair, Qualifying exam scheduled for Oct 28, 2022

7. Gabrielle Balistreri, Ph.D. student in Molecular Engineering
Committee Chair; Passed qualifying exam Oct 4, 2022
6. Sydney Floryanzia, Ph.D. student in Chemical Engineering
Committee Chair; Passed qualifying exam Sept 20, 2022
Awards: ARCS Fellow, GEM Fellow, NSF GRFP
5. Nuo Xu, Ph.D. student in Chemical Engineering
Committee Chair; Passed qualifying exam Nov 5, 2021
4. Brendan Butler, Ph.D. student in Chemical Engineering
Committee Chair; Passed qualifying exam Oct 22, 2021
3. Nam Phuong Nyugen, Ph.D. candidate in Molecular Engineering
Committee Chair, Passed general exam July 21, 2022
2. Hawley Helmbrecht, Ph.D. candidate in Chemical Engineering, Advanced Data Science Option
Committee Chair, Passed general exam May 2021
Awards: Catherine and Scott C. Roberts Distinguished Endowed Graduate Fellowship,
PNNL Data Science Training Program Fellow and Participant
1. Jeremy Filteau, Ph.D. candidate in Chemical Engineering
Committee Co-Chair (Dr. Cole DeForest Co-Chair), Passed general exam October 2021
Awards: ARCS fellow, ITHS TL-1 Fellow

Chaired Masters Degrees

6. Nels Schimek, M.S. in Chemical Science and Technology
Committee Chair
Thesis title: *Development of a machine learning pipeline to analyze biological multiple particle tracking datasets*
May 26, 2022
5. Cheng Hao Robin Lin, M.S. in Chemical Engineering, Advanced Data Science Option
Committee Chair
Thesis title: *Skeletonization and fractal analysis of microglial cells in the neonatal brain*
August 19, 2021
4. Nuo Xu, M.S. in Chemical Engineering
Committee Chair
Thesis title: *Nanoparticle loaded implantable flexible microelectrode arrays for pain management after spinal cord surgery*
June 1, 2021
3. Qiong July Zhou, M.S. in Chemical Engineering, Advanced Data Science Option
Committee Chair
Thesis title: *ifThreshold Python Package: score ranking the standard threshold method.*

March 19, 2021

2. David Shackelford, M.S. in Chemical Engineering, Advanced Data Science Option
Committee Chair
Thesis title: *Comparing Machine Learning Classification Methods for Biological Tracking Data*
August 10, 2020
1. Chih-Chung Chen, M.S. in Chemical Engineering
Committee Chair
Thesis title: *Curcumin-loaded nanoparticles for the treatment of neonatal hypoxia-ischemia encephalopathy*,
June 1, 2017

Other significant student supervision

¹MS/PhD student or MS/PhD-bound, ²MD/PhD or MD student or MD-bound, ³employed in industry or non-academic sector; Current positions of lab alumni are available at <https://www.nancelab.com/lab-alumni-1>

Graduate student rotation advising

2. Olivia Dotson, Ph.D. Student in Molecular Engineering 09/2021 – 12/2021
1. Nathan Chan, Ph.D. Student in Molecular Engineering 01/2018 – 03/2018

Staff Supervision (Research Technologist I)

3. Ana Rios, B.S. in Bioengineering 04/2021 – present
2. Kate Hildahl,² B.S. in Chemical Engineering 06/2018 – 07/2020
1. Sameeha Jilani,² B.A. in Public Health 03/2017 – 07/2018

Current Undergraduate Research Supervision

47. Seoyoung Lee, Chemical Engineering 06/2022 – present
46. Kristin Bennett, Chemical Engineering 04/2022 – present
45. Malcolm Renney, Chemical Engineering 04/2022 – present
44. Mia Yamada-Heidner, Computer Science & Engineering 09/2021 – present
43. Manasvini Calmidi, Electrical Engineering 09/2021 – present
42. Jonny Harrigan, Chemical Engineering 09/2021 – present
41. Gisele Charpentier, Chemical Engineering 06/2021 – present
40. Najma Hashi, Chemical Engineering 06/2021 – present
39. Ali Toghani, Whatcom Community College 06/2021 – present
38. Eleanor Wu, Bioengineering 06/2021 – present
37. Mia Onodera, Computer Science & Engineering 06/2021 – present
36. Teng-Jin Shin, Chemical Engineering, *Mary Gates Research Scholar, Honors Thesis candidate*
10/2020 – present
35. Megan Wong, Chemical Engineering, *NIH fellow* 10/2020 – present
34. Sanjana Janakiraman, Computer Science & Engineering 09/2020 – present
33. Tolulope Adebayo, Biology, *GeNOM ALVA scholar* 06/2019 – present
32. Norah Alhindi, Biochemistry, *KAUST Scholar* 06/2019 – present

Previous Undergraduate Research Supervision

31. Danielle Bondurant,³ Chemical Engineering, *NIH fellow* 10/2020 – 06/2022

- | | |
|--|-------------------|
| 30. Charles Kaleb, ¹ Decker, Chemical Engineering | 03/2020 – 06/2022 |
| 29. Kenneth Sluis, ³ Chemical Engineering | 06/2019 – 03/2022 |
| 28. Ziming Ye, ² Chemical Engineering | 06/2019 – 03/2022 |
| 27. Ana Rios, Bioengineering, <i>STAR scholar</i> | 03/2020 – 03/2021 |
| 26. Alex Hayes, ³ Chemical Engineering | 10/2020 – 06/2021 |
| 25. Zachary Saba, ³ Chemical Engineering | 10/2020 – 06/2021 |
| 24. Denise Beebout, ³ Chemical Engineering, <i>LSAMP Scholar, SWE Schola, NSF REU</i> | 06/2019 – 06/2021 |
| 23. Michael Chungyoun, ¹ Chemical Engineering, <i>McNair Scholar, Mary Gates</i> | 06/2019 – 06/2021 |
| 22. Brendan Ball, ¹ Chemical Engineering, <i>Mary Gates Research Scholar (x2), Levinson Scholar</i> | 06/2019 – 06/2021 |
| 21. Georges Motchoffo Simo, ² Chemical Engineering, Biochemistry, <i>Mary Gates Research Scholar, Class of 1954 Scholarship, 2020 Husky 100 Recipient, Spence Scholarship</i> | 09/2018 – 06/2020 |
| 20. Evan Epstein, ² Chemical Engineering, <i>Honors Thesis candidate</i> | 06/2018 – 06/2020 |
| 19. Tora Gao, ¹ Chemical Engineering, <i>Honors Thesis candidate</i> | 06/2018 – 06/2020 |
| 18. Hugo Ferreria Pontes, ³ Chemical Engineering, <i>CoMotion Fellowship, WRF Fellowship (2019, 2020), Honors Thesis candidate, 2020 Husky 100 Recipient</i> | 02/2018 – 06/2020 |
| 17. Victoria Dahl, ² Chemical Engineering B.S. (06/2019), Biochemistry B.S. (03/2020), <i>Mary Gates Research Scholar</i> | 01/2018 – 03/2020 |
| 16. Dorsa Toghani, ² Bioengineering, <i>Mary Gates Research Scholar</i> | 06/2017 – 06/2020 |
| 15. Jessica Pon, ³ Chemical Engineering | 05/2017 – 06/2020 |
| 14. Nina Chen, ³ Biology | 06/2018 – 06/2019 |
| 13. Emily Rhodes, ¹ Chemical Engineering, <i>CSNE Scholarship</i> | 09/2018 – 12/2018 |
| 12. Olesya Mironchuk, ² Bioengineering/Neurobiology, <i>Mary Gates Research Scholar</i> | 06/2017 – 03/2019 |
| 11. Saahiti Jasti, ² Molecular and Developmental Biology B.S. (obtained 06/2019) | 06/2017 – 06/2018 |
| 10. Sam Broadwell, ¹ Chemical Engineering B.S. (obtained 06/2019) | 06/2017 – 12/2018 |
| 9. Alex Choe, ¹ Materials Science & Engineering | 05/2017 – 12/2018 |
| 8. Paige Bennett, ³ Chemical Engineering B.S. (obtained 06/2018) | 12/2016 – 09/2017 |
| 7. Holly Sullivan, ¹ Chemical Engineering B.S. (obtained 06/2017), <i>Mary Gates Research Scholar (x2)</i> | 09/2016 – 06/2017 |
| 6. Kate Hildahl, ² Chemical Engineering B.S. (obtained 06/2018), <i>Mary Gates Research Scholar; Honors thesis recipient</i> | 05/2016 – 06/2018 |
| 5. Belinda Garana, ¹ Chemical Engineering B.S. (obtained 06/2018), <i>Mary Gates Research Scholar</i> | 05/2016 – 01/2018 |
| 4. Sanchit Gad, ³ Chemical Engineering B.S. (obtained 06/2018) | 01/2016 – 01/2018 |
| 3. Binh Dang, ³ Chemical Engineering B.S. (obtained 06/2017), <i>Mary Gates Research Scholar</i> | 01/2016 – 09/2017 |
| 2. Catherine Panlillio, ³ Chemical Engineering B.S. (obtained 06/2017) | 11/2015 – 06/2017 |
| 1. Andrew Kirk, ³ Chemical Engineering B.S. (obtained 06/2017) | 11/2015 – 06/2017 |

High School Student Research Supervision

- | | |
|--|-------------------|
| 12. Phoebe Wilcox, Summer volunteer | 06/2020 – 09/2020 |
| 11. Eleanor Wu, High School Research Intern | 06/2020 – 06/2021 |
| 10. Ali Toghani, High School Research Intern | 06/2020 – 06/2021 |
| 9. Mia Onodera, Big Picture High School Research Intern | 01/2020 – 06/2021 |
| 8. Maria Sati, Big Picture High School Research Intern | 01/2020 – 06/2021 |
| 7. Jessica Holloway, STEMPREP Project Minority Program participant | 06/2019 – 09/2019 |

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|---|-------------------|
| 6. Jina Duangtavanh, Summer volunteer | 06/2019 – 09/2019 |
| 5. Sanjana Janakiraman, Research Intern | 06/2018 – 08/2020 |
| 4. Maya Mallya, STEMPREP Project Minority Program participant | 06/2018 – 08/2018 |
| 3. Meghan Mallya, STEMPREP Project Minority Program participant | 06/2017 – 08/2017 |
| 2. Sarah Sackeyfio, STEMPREP Project Minority Program participant | 06/2016 – 08/2017 |
| 1. Ben Wong, Summer Volunteer | 06/2016 – 08/2016 |

Undergraduate Project Supervision

- | | |
|---|------|
| 2. Eden Rivers, Mary Gates Leadership Scholarship | 2018 |
| 1. Amanda Levenson, Mary Gates Leadership Scholarship | 2017 |

Graduate Student Committees (Completed, role other than chair)

- | | |
|---|--------------------------------------|
| 34. Amy Mayhugh (Chemistry, Chair: Christine Luscombe) | GSR (PhD 03/2022) |
| 33. Ciana Lopez (Bioengineering, Chair: Pat Stayton) | served as GSR |
| 32. Molly Mollica (Bioengineering, Chair: Wendy Thomas) | committee member (PhD 09/2022) |
| 31. Meilyn Sylvestre (Bioengineering, Chair: Suzie Pun) | served as GSR |
| 30. Elaine Limquenco (Bioengineering, Chair: Dan Ratner) | served as GSR |
| 29. Caitlin Howard (Bioengineering, Chair: Ying Zheng) | served as GSR |
| 28. Claire West (Chemistry, Chair: David Masiello) | GSR (PhD 12/2021) |
| 27. Allison Knupp (Pathology, Chair: Jessica Young) | GSR (PhD 11/2021) |
| 26. Brittany Bishop (Chemical Engineering, Chair: Vincent Holmberg) | committee member (PhD 08/2021) |
| 25. Yanjiao Han (Chemical Engineering, Chair: Shaoyi Jiang) | committee member (PhD 09/2020) |
| 24. Eli Grunblatt (MCB, MSTP, Chair: David Macpherson) | GSR (PhD 05/2020) |
| 23. Caroline Tsao (Chemical Engineering, Chair: Shaoyi Jiang) | committee member (PhD 05/2020) |
| 22. Emily Ruskowitz (Chemical Engineering, Chair: Cole DeForest) | committee member (PhD 03/2020) |
| 21. Sundipta Rao (Electrical Engineering, Chair: Georg Seelig) | GSR (PhD 12/2019) |
| 20. Dion Hubble (Molecular Engineering & Sciences, Chair: Alex Jen) | GSR (PhD 11/2019) |
| 19. David Peeler (Bioengineering, Chair: Susie Pun) | GSR (PhD 11/2019) |
| 18. Benjamin Ponto (Chemical Engineering, Chair: John Berg) | committee member (PhD 10/2019) |
| 17. Chloe Lombard (Chemistry, Chair: Dustin Maly) | GSR (PhD 08/2019) |
| 16. Jared Shadish (Chemical Engineering, Chair: Cole DeForest) | committee member (PhD 06/2019) |
| 15. Seongbeom Lee (Chemical Engineering, Chair: Venkat Subramanian) | committee member (PhD 05/2019) |
| 14. Brittney Hellner (Chemical Engineering, Chair: Francois Baneyx) | committee member (PhD 05/2019) |
| 13. Erik Liu (Chemical Engineering, Chair: Shaoyi Jiang) | committee member (PhD 05/2019) |
| 12. Alexander Thomas (Chemical engineering, Chair: Francois Baneyx) | committee member (MS 03/2019) |
| 11. Hannah Feldman (Chemistry, Chair: Dustin Maly) | GSR (PhD 03/2019) |
| 10. Barry Badeau (Chemical Engineering, Chair: Cole DeForest) | committee member (PhD 03/2019) |
| 9. Michael Newton (Chemical Engineering, Chair: James Carothers) | committee member (MS 02/2019) |
| 8. Fang-Yi Su (Bioengineering, Chair: Pat Stayton) | GSR (PhD 12/2018) |
| 7. Razieh Khalifehzadeh (Chemical Engineering, Chair: Buddy Ratner) | committee member (PhD 08/2018) |
| 6. Nicholas Montoni (Chemistry, Chair: David Masiello) | GSR (PhD 06/2018) |
| 5. Kayla Sprenger (Chemical Engineering, Chair: Jim Pfaendtner) | committee member (PhD 08/2017) |
| 4. Elisa Harrison (Chemical Engineering, Chair: David Castner) | committee member (PhD 06/2017) |
| 3. Andrew Sinclair (ChemE, Chair: Shaoyi Jiang) | committee member (PhD 12/2016) |
| 2. Ames Register (Chemistry, Chair: Dustin Maly) | GSR (PhD 08/2016) |
| 1. Junwei Li (Materials Science & Engineering, Chair: Xiaohu Gao) | fill-in GSR for general exam 03/2016 |

Current Graduate Student Committees (role other than chair)

- | | |
|--|--|
| 19. Tyler Jordan (Bioengineering, Chair: Shelly Sakiyama-Elbert) | stage: general exam, committee member |
| 18. Pablo Ramos Ferrer (Bioengineering, Chair: Shelly Sakiyama-Elbert) | stage: general exam, committee member |
| 17. Julia King (Chemical Engineering, Chair: Buddy Ratner) | stage: thesis defense, committee member |
| 16. Christina Yang (Chemical Engineering, Chair: Cole DeForest) | stage: qualifying exam, committee member |
| 15. Ava Waggett (Chemical Engineering, Chair: Jim Pfaendtner) | stage: qualifying exam, committee member |
| 14. Nicole Gregorio (Bioengineering, Chair: Cole DeForest) | stage: passed qualifying, committee member |
| 13. Melissa Ling (Molecular Engineering, Chair: Suzie Pun) | stage: qualifying exam, committee member |
| 12. Ethan Stoddard (Chemistry, Chair: Dustin Maly) | stage: general exam, GSR |
| 11. Cole Martin (Chemical Engineering, Chair: Jon Posner) | stage: passed exam, committee member |
| 10. Nada Nasar (Chemical Engineering, Chair: Francois Baneyx) | stage: passed qualifying, committee member |
| 9. Kaylyn Torkelson (Chemical Engineering, Chair: Jim Pfaendtner) | stage: passed general, committee member |
| 8. James Cain (Chemical Engineering, Chair: Neda Beghari) | stage: passed general, committee member |
| 6. Yu Jung Shin (Bioengineering, Chair: Ying Zhen) | stage: passed qualifying, committee member |
| 6. Evan Komp (Chemical Engineering, Chair: Stephanie Valleau) | stage: passed qualifying, committee member |
| 5. Ryan Gharios (Chemical Engineering, Chair: Cole DeForest) | stage: passed qualifying, committee member |
| 4. Prabhleen Kaur (Chemical Engineering, Chair: Buddy Ratner) | stage: passed general, committee member |
| 3. Sayeh Gorjifard (Genome Sciences, Chair: Christine Queitsch) | stage: passed general exam, GSR |
| 2. Zachary Potter (Chemistry, Chair: Dustin Maly) | stage: passed general exam, GSR |
| 1. Monet Jimenez (Pathology, Chair: Jihong Bai) | stage: passed general exam, GSR |

RESEARCH ACTIVITIES

*the following tables do not include fellowship or scholarship-funded student support; all grant amounts are representative of direct costs

Funded Research - ACTIVE

Funding Agency	Title	Role	Amount/your share (all direct)	Dates (start - finish)
NIH R01	Repurposing azithromycin for premature brain injury	Co-I (PI: Wood, UW)	\$2.1M/\$500k	02/21 – 02/26
NIH R01	The role of semen in induction of paternal-specific tolerance during pregnancy	Co-I (PI: Lucia Vojtech, UW/Fred Hutch)	\$2.2M/\$200k	04/21 – 3/26
NIH R21	Endogenous enzyme-loaded nanoparticles for treatment of neonatal HIE	PI	\$275k/all	06/20 – 05/23 (NCE)
DoD	Transforming triple negative breast cancer treatment through intratumoral immunotherapy via nanofluidic drug eluting seed	Co-I (PI: Alessandro Grattoni, Houston Methodist)	\$1.5M/\$132k	06/20 – 05/25
NSF	HDR: I-DIRSE-FW: Accelerating the Engineering Design and	Co-I (PI: Balazinska, UW)	\$2M/\$100k	09/19 – 08/23 (NCE)

	Manufacturing Life-Cycle with Data Science			
NIH R35	Quantitative 3D imaging of <i>in situ</i> nanoparticle movement and cellular behavior during neuroinflammation	PI	\$1.5M*/all	08/17 – 07/23 *additional year for PECASE award

Funded Research – COMPLETED

Funding Agency	Title	Role	Amount/your share (all direct)	Dates (start – finish)
NSF	Combined molecular simulation and experimental study to discover, predict and control enzyme immobilization in polymeric nanoparticles	Co-I (PI: Pfaendtner, UW)	\$360k/\$166k	09/17 – 03/22
NIH	Equipment Supplement: High temporal and spatial resolution fluorescent imaging instrumentation	PI	\$250k/all	NA
BWF	Nanoparticle-mediated targeted therapies for pediatric brain disorders	PI	\$500k/all	07/15 – 06/19
UW ChemE Data Science Initiative	Experimental diffusion analysis to extract changes in tissue-structure function in the diseased brain	PI	\$29k/all	03/19 – 12/19
Seattle Foundation	Helios gene gun purchase for cell transfection to study structure-function in the developing brain	PI	\$25k/all	01/19 – 12/19
Seattle Children's	Does Nanocurcumin Protect the Preterm Brain from Injury?	Co-I	\$25k/\$2k	09/17 – 08/18
UW EDGE Pilot Project	3D organotypic brain slice model for assessing quantum-dot toxicity and cellular localization	PI (Co-PI Vince Holmberg)	\$40k/\$25k	03/17 – 03/18

Graduate Student Funding Support through Scholarships, Fellowships, and Grants

D.D. and Sylvia M. Drowley Fellowship:	Rick Liao (2015)
Thomas G. Thompson Endowed Fellowship Recipient:	Mike McKenna (2016 – 2017)
ITHS TL-1 Fellowship:	Chad Curtis (2017)
	Jeremy Filteau (2021)
Jeet and Janice Bindra Endowed Graduate Fellowship:	Chris Nyambura (2017 – 2018)
UW Graduate School Conference Travel Awards:	Rick Liao (2019),
	Mike McKenna (2019),
	Andrea Joseph (2018, 2019),

UW Graduate School Excellence and Innovation Travel Award:	Mengying Zhang (2017, 2019)
Kirschstein National Research Service Award (NRSA) Individual Predoctoral Fellowship:	Rick Liao (2017)
Achievement Rewards for College Scientists (ARCS) Foundation Fellowship Recipient:	Andrea Joseph (2018 – 2021)
GEM Consortium Fellowship	Mike McKenna (2016 – 2019), Jeremy Filteau (2018 – 2021) Sydney Floryanzia (2021 – 2023)
Catherine and Scott C. Roberts Distinguished Endowed Graduate Fellowship in Chemical Engineering:	Sydney Floryanzia (2021 – 2022)
Microsoft Azure Cloud Computer Grant	Hawley Helmbrecht (2019)
Pacific Northwest National Lab Data Science Training Fellowship	Nels Schimek (2021)
NSF Graduate Research Fellow	Nels Schimek (2022)
	Hawley Helmbrecht (2020 – 2021)
	Sydney Floryanzia (2022 – 2025)

Other funded grant activities:

Organization	Project title	Role	Status	Lead PI
NIGMS	Maximizing access to research careers (MARC) at UW	Mentor	Funded	PI: Teri Ward
NIH	Women's Reproductive Health Research at UW	Mentor	Funded	PI: Susan Reed
NCI	Interdisciplinary Training in Cancer Research	Other (Steering Committee member)	Funded	PI: Barry Stoddard
Burroughs Wellcome Fund	13 th Hershey Conference on Developmental Brain Injury	PI	Funded (\$8,000 Direct)	
NIH	13 th Hershey Conference on Developmental Brain Injury	Co-I	Funded (\$25,000 Direct)	PI: Sandra Juul

DOCUMENTATION OF TEACHING EFFECTIVENESS

Please see the following page for a table summarizing all courses taught in order by academic quarter from oldest to most recent. The table includes data for: the number of students enrolled in the course (# enrolled), % responses on end of quarter evaluations, both median (med.) and adjusted (adj.) values for line items 1, 3, 4, CEI values, and the overall summative combined median and adjusted combined median values.

Quarter	Course Information						Item 1		Item 3		Item 4		Overall Summative		
	Course Title	Course #	# CR	# TA Used	# Enrolled	Evaluations? Responses (%)	Med.	Adj.	Med.	Adj.	Med.	Adj.	Combined Median	Adjusted Combined Median	CEI
Au2015	Transport Processes I: Fluid Mechanics	CHEME 330	5	2	64	56 (88%)	3.8	4.1	4.3	4.6	3.8	4.1	3.9	4.2	5.7
Sp2016	Biological transport of nanoscale systems for human application	CHEME 599E	3	0	17	17 (100%)	4.2	4.3	4.9	5.0	4.7	4.8	4.6	4.6	4.4
Au2016	Transport Processes I: Fluid Mechanics	CHEME 330	5	1	35	35 (100%)	4.7	4.8	4.9	5.0	4.8	4.9	4.8	4.9	6.2
Wi2017	Communication in Chemical Engineering	CHEME 498B	3	0	12	No	NA								
Sp2017	Physiological processes in engineering nanomedicine	CHEME 599E	3	0	18	17 (94%)	4.6	4.6	4.8	4.8	4.7	4.8	4.6	4.6	4.4
Su2017	Current Topics in Molecular Engineering	MOLES 599E	3	1	15	No	NA								
Au2017	Transport Processes I: Fluid Mechanics	CHEME 330	5	2	73	72 (99%)	4.6	4.9	4.8	5.1	4.6	5.0	4.6	4.9	5.9
Au2017	Transport Processes III: Mass Transfer/Separations	CHEME 435	4	2	66	62 (94%)	3.0	3.5	3.4	3.8	3.1	3.5	3.2	3.6	5.4
Au2018	Transport Processes III: Mass Transfer/Separations	CHEME 435	4	2	66	59 (89%)	3.9	4.2	4.5	4.8	4.1	4.5	4.1	4.4	5.4
Wi2019	Technical Communication in Chemical Engineering	CHEME 498B	3	0	13	11 (85%)	4.7	4.4	5.0	4.7	4.8	4.5	4.8	4.5	4.3

Sp2019	Physiological processes in engineering nanomedicine	CHEME 434/534	3	0	24	22 (92%)	4.9	4.8	5.0	5.0	5.0	4.9	4.9	4.9	5.7
Au2019	Transport Processes III: Mass Transfer/Separations	CHEME 435	4	1.5	69	58 (84%)	3.9	4.3	4.4	4.7	4.0	4.4	4.0	4.3	5.0
Wi2021	Physiological processes in engineering nanomedicine	CHEME 434/534	3	0	15	10 (67%)	4.5	4.4	5.0	4.9	4.9	4.9	4.9	4.8	4.0
Sp2021	Physical Processes in Chemical Engineering	CHEME 310	4	2	73	69 (97%)	3.9	4.3	4.7	5.0	4.4	4.8	4.3	4.7	6.1
Au2021	Transport Processes III: Mass Transfer/Separations	CHEME 435	4	1	62	53 (85%)	4.1	4.4	4.5	4.8	4.6	4.9	4.4	4.7	5.6
Sp2022	Exploring Chemical Engineering Careers	CHEME 498D	1	0	41	16 (39%)	4.6	4.7	4.9	5.0	4.8	5.0	4.8	4.9	3.9
Sp2022	Physical Processes in Chemical Engineering	CHEME 310	4	2	66	55 (82%)	4.5	4.7	4.8	5.0	4.8	5.0	4.6	4.9	6.1
Wi2022	Physiological processes in engineering nanomedicine	CHEME 434/534													
Sp2022	Physical Processes in Chemical Engineering	CHEME 310													

Supervised Independent study for Undergraduate and Graduate Research

Undergraduate researchers in the Nance lab are not required to register for research credit to participate in lab work. Undergraduates can only achieve 9 credit hours of research towards their degree. Therefore, all students sign-up for credit based on their course load for each respective quarter and the credit hours below only reflect those that are credit towards a degree.

Quarter	Courses	Total # Credit Hours
Wi2016	CHEME: 499,600; MOLENG: 600	34
Sp2016	CHEME: 499, 600; MOLENG: 600	45
Su2016	CHEME: 499; MOLENG: 600	12
Au2016	CHEME: 499, 600, 700; MOLENG: 600	41
Wi2017	CHEME: 499, 600, 700; MOLENG: 600	70
Sp2017	CHEME: 299, 499, 600, 700; MOLENG: 600	74
Su2017	CHEME: 299, 499; MOLENG: 600	15
Au2017	CHEME: 299, 499, 600; MOLENG: 600	55
Wi2018	CHEME: 499, 600, 800; MOLENG: 600	64
Sp2018	CHEME: 299, 499, 600, 800; MOLENG: 800	69
Su2018	CHEME: 499, 800; MOLENG: 800	11
Au2018	CHEME: 499, 600, 800; MOLENG: 800	60
Wi2019	CHEME: 499, 600, 800; MOLENG: 800	87
Sp2019	CHEME: 499, 600, 800; MOLENG: 800	94
Su2019	CHEME: 299, 499; MOLENG: 800	8
Au2019	CHEME: 499, 600, 700, 800; MOLENG: 800; BIOEN: 402	94
Wi2020	CHEME: 499, 600, 700, 800; MOLENG: 800; BIOEN: 402	102
Sp2020	CHEME: 299, 499, 600, 700, 800; MOLENG: 600, 800; BIOEN: 402	114
Su2020	CHEME: 700; MOLENG: 600, 800	6
Au2020	CHEME: 499, 600, 700, 800; MOLENG: 600, 800	83
Wi2021	CHEME: 299, 499, 600, 700, 800; MOLENG: 600	60
Sp2021	CHEME: 299, 499, 600, 700, 800; MOLENG: 600	67
Su2021	CHEME: 700; MOLENG: 800	4
Au2021	CHEME: 299, 499, 600, 800; MOLENG: 600	71
Wi2022	CHEME: 299, 499, 600, 800; CHEM: 700; MOLENG: 600	99
Sp2022	CHEME 299, 499, 600, 800; MOLENG: 600	107
Su2022	CHEME: 499; MOLENG: 600	8
Au2022		
Summary of total credit hours per course: <i>CHEME 299: 41; CHEME 499: 251; CHEME 600: 523; CHEME 700: 62; CHEME 800: 414;</i> <i>MOLENG 600: 144; MOLENG 800: 87;</i> <i>BIOEN 402: 9; CHEM 700: 4</i> Total Graduate Level Credit Hours: 1234; Total Undergraduate Level Credit Hours: 301		

Peer review of classes table

Peer review in the department of chemical engineering is performed annually in the spring for core chemical engineering courses.

Course	Quarter	Reviewer
CHEME 330	Autumn 2015	Jim Pfaendtner
CHEME 330A	Autumn 2016	John Berg
CHEME 330	Autumn 2017	Lilo Pozzo
CHEME 435	Autumn 2017	James Carothers
CHEME 435	Autumn 2018	Cole DeForest
CHEME 435	Autumn 2019	John Berg
CHEME 310	Spring 2021	Ben Rutz
CHEME 435	Autumn 2021	Eric Stuve
CHEME 310	Spring 2022	TBD

List of other teaching contributions

NEURO 501

Microglia module – For graduate students in rolled in the neurobiology Ph.D. program, this module covers the current state of understanding of microglia, their origin, function, and role in disease.

Workshops

Science and Technical Communication graduate workshops – For graduate students and postdocs, I created a summer workshop series focused on writing technique. The workshop allowed any student working on a manuscript, fellowship or grant application, thesis, or any other document related to their ongoing research work to dedicate focused time towards writing. The structure of the summer series was 5 sessions spanning 4 weeks, where each session included a short presentation on one aspect of effective writing followed by a longer (~3h) block for writing and peer review.

Curriculum development

CHEME 498 Special Topics: Exploring Chemical Engineering Careers – As Associate Chair of our Undergraduate Program, I developed a 1 credit engineering elective course for current chemical engineering students and prospective students to explore chemical engineering careers. The course was structured to provide exposure to the college of engineering's six areas of impact: health & medicine, digital technology & data & computing, air & space, robotics & manufacturing, infrastructure, transportation & society, and environment, sustainability, & energy. Students have the opportunity to hear from department alumni in panel Q&A sessions and meet with department alumni in each of the 6 areas of impact. Students identify career directions of interest, develop job application materials, and participate in job and career preparation activities.

CHEME 498 Special Topics: Technical Writing for Chemical Engineers – I have created a 3-credit technical communication course for chemical engineering students. The goal of this course is to prepare chemical engineering students with the individual and collaborative technical writing and presentation skills necessary to be effective technical communicators in academic and professional environments. This class provides equivalent or replacement credit for UW's writing course ENGR 231 or provides engineering elective credit.

CHEME 434/534 Physiological transport processes in engineering nanomedicine – I developed a 3-credit elective designed to provide students with an understanding of the physiological principles that influence the use of nanoscale systems in the human body. We will specifically focus on physiological principles related to the transport and partitioning of nanotherapeutics to different organs in the body. In each subunit, the basic physiological principles that drive function of each organ will be discussed, followed by analysis of the relevant barrier to nanomedicine applications for that organ, and a literature review of nanomedicine applications for diseases of that organ.

ENGR115 Engineering Transformations of Health – For UW College of Engineering Direct to College freshman, I co-created an Engineering Transformations in Health course with bioengineering and mechanical engineering faculty. This course teaches fundamental aspects of engineering and exploration of multidisciplinary engineering approaches to improving and promoting human health. The goal is also to impart understanding for how engineers from different disciplines collaborate, approach, and solve health problems.

Teaching Awards, Nominations for Teaching Awards

2016 UW Distinguished Teaching Award Nominee

SERVICE

University Leadership

2022 – 2023 UW Chemical Engineering Faculty Search Committee, *Chair*
2021 – 2022 UW Chemical Engineering Faculty Search Committee, *Co-Chair*
Tenure-track Assistant Professor search
Teaching Assistant Professor search
2020 – 2021 UW Chemical Engineering Faculty Search Committee, *Co-Chair*
Tenure-track Assistant Professor search
Teaching Assistant Professor search
2020 – 2021 UW College of Engineering DEIS Subcommittee, *Committee Co-chair*
2020 – 2021 UW College of Engineering Strategic Planning, *Steering Committee Member*
2020 – present UW Chemical Engineering Associate Chair of Undergraduate Studies
2019 – 2020 UW Chemical Engineering Faculty Search Committee, *Co-Chair*
2018 – 2021 UW Chemical Engineering Diversity Committee, *Chair*
2017 – 2019 UW Faculty Senate Chair's Council
2017 – present UW Chemical Engineering Microscopy Shared Laboratory, *Lead*
2016 – 2021 Fred Hutch Interdisciplinary Training Grant in Cancer, *Steering committee member*
2016 – present Women in Chemical Engineering (WChE), Seattle WA, *Founder, Faculty Advisor*

Professional Leadership

2022 – present *Bioengineering & Translational Medicine*, Interim Editor in Chief
2021 – 2026 *Bioengineering & Translational Medicine*, Associate Editor
2021 – 2022 13th Hershey Conference on Developmental Brain Injury, *Planning committee*
2020 – 2022 Controlled Release Society Central Nervous System Focus Group, *co-founder and vice chair*
2020 AICHe Chemical Engineers in Medicine: Topical, *Programming committee*
2019 – 2020 AICHe Molecular and Materials Data Science: Topical, *Programming committee*

- 2019 – 2023 AICHE Area 22B Co-Chair, *Programming committee*
2018 – present WChE National Coordinator for new chapters – 4 new chapters have been founded since 2018

OTHER SERVICE - UNIVERSITY

UW Departmental service

- 2022 Bioengineering Promotion & Tenure Review Committee, *Member*
2022 Bioengineering Graduate admissions application reviewer, *Ad hoc*
2021 – 2022 Medical Science Training Program Interview Committee, *Member*
2021 – present Chemical Engineering Department Diversity Committee, *Member*
2020 Chemical Engineering Graduate admissions application reviewer, *Ad hoc*
2020 Chemical Engineering Undergraduate admissions application reviewer, *Ad hoc*
2020 – present Chemical Engineering Committee Chairs Advisory Council, *Member*
2019 – 2020 Chemical Engineering Undergraduate Affairs Committee, *Member*
2018 – 2019 Chemical Engineering Faculty Search Committee, *Member*
2017 – 2018 Chemical Engineering Faculty Search Committee, *Member*
2016 – 2017 Chemical Engineering Strategic Planning Committee – Health and Medicine in ChemE, *Member*
2016 – present WChE Annual Industry Event Committee, *Lead/Faculty Advisor*
2016 – 2020 Chemical Engineering Discovery Days Department Committee, *Co-Chair*
2016 – 2018 Chemical Engineering Departmental Diversity Committee, *Member*
2016 – present UW Chemical Engineering AICHE Annual Student Conference, *Recruiter*
2016 – present Chemical Engineering Pre-health track, *Faculty Advisor*
2015 – present Chemical Engineering ABET committee: undergraduate curriculum accreditation, *Member*
2015 – 2020 Chemical Engineering Department Seminar Series, *Committee Co-Chair*

UW College of Engineering service

- 2020 – 2023 Council on Education Policy, *Department of Chemical Engineering representative*
2020 COE Awards, *Reviewer*
2017 – present COE Advising & Orientation, *Faculty Speaker*
2016 – 2019 Engineering Discovery Days, *Faculty Participant and Exhibit Leader*
2016 – 2018 NSF STARS Scholarship grant, *Faculty Mentor*
2016 – 2017 UW SWE Welcome night, *Speaker*

University of Washington service

- 2022 UW Mary Gates Symposium, *Abstract Reviewer, Session Chair*
2021 UW Husky 100 Award, *Ad hoc Reviewer*
2020 UW STARS Program, *Research Supervisor*
2018 – 2021 UW Royalty Research Fund, *Ad hoc Reviewer*
2017 – 2021 UW New Husky Advising & Orientation, *Faculty Speaker*
2017 – present Pre-Health Planning: Getting Great Recommendation Letters, *Panelist*
2016 – 2021 STEMM Prep program, Distance Learning Center, *Research Mentor*
2016 – 2019 UW Goldwater Candidate Selection Committee, *Member*
2016 – 2018 UW WiSE Bridge-Up Summer Research Program, *Research Mentor*
2016 – 2018 UW Math Academy, *Workshop host*
2015 – 2018 Women in Science and Engineering (WiSE), UW Chapter, Seattle WA, *Faculty Mentor, speaker*

University Lectures, Seminars, and Workshop leads - †Presenter

27. **Nance E.**† Engineering therapies for the pediatric brain. College of Engineering Public Lecture Series. Seattle, WA; October 26, 2022.
27. **Nance E.**† Let's talk about the academic track. Fred Hutch Interdisciplinary Training Grant Program Seminar Series. Guest speaker, February 28, 2022
26. **Nance E.**† Technology development for understanding and treating neurological disease. Guest Lecture, ENGR 101, Seattle WA; December 30, 2021
25. **Nance E.**† Transport in Physiology: from the drug delivery perspective. Guest Lecture, CHEME 530, Seattle, WA; November 29, 2021
24. **Nance E.**† Centering safety in the Nance Lab. UW Environmental Health & Safety Graduate Student Employee Training; Faculty Speaker, September 26, 2021.
23. **Nance E.**† New Student Orientation, UW First Year Programs Faculty Speaker, Seattle WA; July 12, 2021
22. **Nance E.** † Nano and neuro technology development for kids. Department of Chemical Engineering Seminar Series; Promotion & Tenure seminar; September 28, 2020
21. Joseph A.†, **Nance E.**† The world of polymers – homemade caviar. UW Math Academy Workshop, Seattle WA; July 23, 2020
20. **Nance E.**† Integrating engineering nanotechnology, neurobiology, and data sciences. Guest Lecture, GEN ST 297, Seattle WA; March 31, 2020
19. **Nance E.**† New Student Orientation, UW First Year Programs Faculty Speaker, Seattle WA; March 2, 2020
18. **Nance E.**† Integrating engineering nanotechnology, neurobiology, and data sciences. Guest Lecture, CHEME 355, Seattle WA; February 6, 2020
17. **Nance E.**† Intersection of neurobiology, engineering nanomedicine, and data sciences. Guest Lecture, ENGR 115, Seattle WA; February 3, 2020
16. **Nance E.**† Breaking down barriers: the power of connection. UW College of Engineering Precollegiate Summit, Seattle WA; April 20, 2019
15. **Nance E.**† Nanotechnology applications for treatment of brain disease. College of Engineering Women Across Engineering Symposia, Seattle WA; April 12, 2019
14. **Nance E.**† Transfer Student Orientation, UW First Year Programs Faculty Speaker, Seattle WA; February 28, 2019
13. **Nance E.**† Probing the brain using nanotechnology - directing better treatment for brain disease. Guest Lecture, ENGR 115, Seattle WA; February 19, 2019
12. **Nance E.**† Tackling brain diseases: leveraging the power of connection across scale and fields. College of Engineering Provost Tour, Seattle WA; January 23, 2019
11. **Nance E.**† The Chemical Engineering Degree. Guest Lecture, STARS, Seattle WA; May 3, 2018
10. **Nance E.**† Nano-based probes of the diseased brain: therapeutic implications. Guest Lecture, NME 221/321/421, Seattle WA; April 5, 2018
9. **Nance E.**† Models to understand nanoparticle behavior in the brain: therapeutic implications. Guest Lecture, CHEME 355; Seattle, WA; February 5, 2018
8. **Nance E.**† Breaking down barriers: the power of connection. UW Maple Hall Engineering Event; Seattle, WA; November 8, 2017
7. **Nance E.**† Communication at scientific interfaces: how to effectively communicate in an increasingly interdisciplinary world. Guest Lecture, DIRECT, Seattle, WA; July 13, 2017

6. **Nance E.**† Nanotechnology-based probes of neurological disease. Guest Lecture NME 221/321/421; Seattle, WA; May 11, 2017
5. **Nance E.**† Probing neuroinflammation: implications for therapeutic delivery in the developing brain. UW Bioengineering Seminar Series, Seattle WA; April 27, 2017
4. **Nance E.**† The Chemical Engineering Degree: A path towards understanding and treating complex disease. Guest Lecture, ENGR 101, Seattle WA; April 24, 2017
3. **Nance E.**† Probing neuroinflammation: implications for therapeutic delivery in the developing brain. UW
2. **Nance E.**† The Chemical Engineering Path. Guest Lecture, STARS, Seattle WA; February 23, 2017
1. **Nance E.**† Transport phenomena in the developing brain: implications for therapeutic delivery. Molecular Engineering & Sciences Seminar Series, Seattle WA; November 22, 2016

OTHER SERVICE - PROFESSIONAL

Editorial Responsibilities

- 2020 – 2022 Springer Publishing, Book Editor: Engineered Biomaterials for Neural Applications
2018 – 2019 Science Translational Medicine Associate Scientific Advisor

Proposal Reviewer

- 2022 NIH Nano Study Section, *Ad hoc Reviewer*
2022 M.J. Murdock Charitable Trust, *Ad hoc Reviewer*
2022 Engineering Cancer Cures Program, *Ad hoc Reviewer*
2021 NIH Nano Study Section, *Ad hoc Reviewer*
2019 Netherlands Organization of Scientific Research, *Ad hoc Reviewer*
2019 Arkansas Breast Cancer Research Program Pilot Award Program, *Ad hoc Reviewer*
2019 NIH National Center for Advancing Translation Sciences Clinical and Translational Science Awards Program, *Ad hoc Reviewer*
2019 National Science Centre (Poland), *Ad hoc Reviewer*
2019 Charles Hood Foundation, *Ad hoc Reviewer*
2018 Luxembourg National Research Fund, *Ad hoc Reviewer*
2018 NSF BMAT Division Study Section, Rotating Member
2018 NSF GRFP Reviewer
2017 NSF CISE Division Study Section, Rotating Member
2017 – 2021 ITHS TL-1 Fellowship Selection Committee, Reviewer
2016 – 2021 UW-Fred Hutch Interdisciplinary Training Grant in Cancer, Reviewer

Journal Referee

- | | |
|------------------------------------|---|
| Accounts of Chemical Research | Biomaterials |
| ACS Applied Materials & Interfaces | Bioengineering & Translational Medicine |
| ACS Nano | Cell Biology and Toxicology |
| ACS Omega | Current Drug Metabolism |
| ACS Sensors | Drug Delivery & Translational Research |
| Acta Biomaterials | Environmental International |
| Advanced Healthcare Materials | FASEB Journal |
| Advanced Drug Delivery Reviews | International Journal of Pharmaceutics |
| Analytical Chemistry | Journal of Controlled Release |

Journal of Drug Delivery Science and Technology	Nature Reviews Materials
Journal of Neuroinflammation	Neurochemistry International
Journal of Reproductive Immunology	NeuroReport
JoVE	Pharmaceutics
Nano Research	Science
Nanobiomedicine	Science Advances
Nanomedicine	Scientific Reports
Nanomedicine: Nanotechnology, Biology, and Medicine	Science Translational Medicine
	Theranostics

Conference Session Chairing

2022	Drug Carriers in Medicine and Biology, Gordon Research Conference, <i>Discussion Lead</i>
2022	Controlled Release Society Annual Meeting, Nervous System Delivery Session, <i>Chair</i>
2020	AIChE Training Chemical Engineers for Medical Careers Session, Topical Conference on Chemical Engineers in Medicine, <i>Co-Chair</i>
2020 – 2022	AIChE Chemical Engineering Principles Advancing Medicine Session, Topical Conference on Chemical Engineers in Medicine, <i>Co-Chair</i>
2020	AIChE Applications of Data Science to High Throughput Experimentation Session, Topical Conference in Molecular and Materials Data Science, <i>Co-Chair</i>
2019 – 2022	AIChE Bionanotechnology: Plenary (Invited Talks), <i>Co-Chair</i>
2019	AIChE Medical Devices II Session, Topical Conference on Chemical Engineers in Medicine, <i>Co- Chair</i>
2019 – 2021	AIChE Topical Plenary: Topical Conference in Molecular and Materials Data Science (Invited Talks), <i>Co-Chair</i>
2018 – 2022	AIChE Bionanotechnology Graduate Student Award Sessions I and II, <i>Co-Chair</i>
2017	Controlled Release Society Annual Meeting, Overcoming Biological Barriers Session, <i>Chair</i>
2016 – 2018	AIChE Bionanotechnology Drug and Gene delivery Sessions I and II, <i>Co-Chair</i>
2016	American Society of Mechanical Engineering Nano-Biotechnology Meeting, Graduate Student Award Session, <i>Co-Chair</i>

Conference Abstract Reviewer

2020 – 2021	Controlled Release Society Annual Meeting
2017 – 2018	Controlled Release Society Annual Meeting
2017	Western Conference on Perinatal Research
2016	American Society of Mechanical Engineers Nanoengineering for Medicine and Biology Conference
2014 – present	American Institute of Chemical Engineers Annual Meeting

OTHER SERVICE - COMMUNITY

2022	Northwest Science Writers Association, <i>guest speaker and public lecture</i> “Nanotechnology and uses for brain disease”; September 15, 2022
2021	STEMM 4 Girls, <i>speaker</i>
2021	AIChE Women in ChemE (WIC), <i>consultant</i>
2021	WChE-USC, <i>guest speaker</i>

- 2020 Horizons by Hopkins Professional Development Conference, *speaker and panelist*
- 2020 Experiences of Black STEM in the Ivory: A Call for Disruptive Action, *organizing committee*
- 2019 – 2022 USC Women in Chemical Engineering Chapter, Palo Alto, CA, *external advisor*
- 2018 – 2021 UVA Women in Chemical Engineering Chapter, Charlottesville VA, *external advisor*
- 2018 – 2021 STEM Career Fair, Bellevue School System, Bellevue WA, *Speaker, event consultant*
- 2016 – present Faculty candidate mentor for underrepresented chemical engineering and biomedical engineering candidates
- 2015 – 2017 STEM Career Fair, Bellevue School System, Bellevue WA, *Panelist*
- 2013 – 2015 Children’s Science Center, Herndon VA, *Science Writer, Communications and Marketing*
- 2013 – 2014 Cystic Fibrosis Foundation, Bethesda MD, *Member, Revenue Strategic Action Team*
- 2012 – 2013 Thread (formerly Incentive Mentoring Program), Baltimore MD, *Director of Post-Graduate Affairs, Co-Chair of the Professional Development Academy*
- 2008 – 2015 Cystic Fibrosis Foundation, Bethesda MD, *Member, Maryland Chapter Fundraising*
- 2008 – 2010 Incentive Mentoring Program (now Thread), Baltimore MD, *High School Family Director*
- 2003 – 2005 Prevent High School DropOut (PHD) Mentoring Program, Raleigh NC, *Founder and Director*
- 1996 – 1999 Loaves and Fishes, Charlotte NC, *Mecklenburg County Food Drive Organizer*

APPENDIX A - Poster presentations given at conference/symposia (refereed) - †Presenting author, footnotes indicate ¹graduate students, ²undergraduate students, and ³high school students mentored by E. Nance.

71. Balistreri G.^{1†}, Xu N.¹, **Nance E.** Surfactants effect nanoparticle pharmacokinetics in the neonate. SACNAS Annual Meeting; Puerto Rico, October 2022
70. Xu N.^{1†}, Wong M.², **Nance E.** Neonatal pharmacokinetics and biodistribution of polymeric nanoparticles Controlled Release Society Annual Meeting, Montreal CA; July 14, 2022
69. Chand K.K., Helmbrecht H.¹, Colditz P.B., **Nance E.**, Wixey J.A. † Microglial changes in the growth restricted newborn brain. 13th Hershey Conference on Developmental Brain Injury, Union WA; June 1, 2022.
68. Wood T.R.[†], Moralejo D., Dotson O.¹, Rios Sigler A.², Corry K., Kolnik S.E., White O., Farid L., Brandon O., McKenna M.¹, Nguyen N.P.¹, Juul S.E., **Nance E.** Region-specific synergism of high-dose azithromycin and erythropoietin in an extremely preterm ferret model of oxygen-glucose deprivation. 13th Hershey Conference on Developmental Brain Injury, Union WA; June 1, 2022.
67. Nguyen N.P.^{1†}, Helmbrecht H.¹, Ye Z.², Adebayo T.², Hashi N.², Doan M-A., **Nance E.** Brian tissue derived extracellular vesicle mediated therapy in the neonatal ischemic brain 13th Hershey Conference on Developmental Brain Injury, Union WA; June 1, 2022.
66. Helmbrecht H.^{1†}, **Nance E.** Image Processing Methods for Microglia Morphology Quantification of Immunofluorescent Brain Images. 13th Hershey Conference on Developmental Brain Injury, Union WA; June 1, 2022.
65. Wong M. †, Xu N.¹, Nance E. AIChE Pacific Northwest Student Regional Conference, Seattle WA; April 21, 2022. *received 2nd place poster award
64. Nyambura C.^{1†}, **Nance E.**, Pfaendtner J., Altering PLGA-Peg, PLGA and Peg Oligomer Extension to Understand Driving Forces behind Protein/Polymer Binding, Using Atomistic Molecular Dynamics. AIChE Annual Meeting, virtual; November 17, 2021
63. Wood TR, Hildahl K¹, Corry K, Moralejo D, Kolnik SE, Juul SE, **Nance E.**† Region-specific injury and therapeutic response in a term-equivalent ferret ex vivo organotypic brain slice model of oxygen-glucose deprivation. 12th Hershey Conference on Developmental Brain Injury; virtual

62. Decker K.^{2†}, Helmbrecht H.¹, **Nance E.** Algorithmic Study of Astrocyte Morphology with Increasing Distance from Injury. UW Undergraduate Research Symposium; virtual; May 21, 2021
61. Chungyoun M.,^{2†} Liao R.¹, **Nance E.** Optimizing the Polymeric Nanoparticle Formulation Parameters and Characterizing Poly(ethylene glycol) Degradation for Neurological Drug Delivery UW Undergraduate Research Symposium; virtual; May 21, 2021
60. Wood TR[†], Hildahl K, Corry K, Moralejo D, Kolnik SE, Juul SE, **Nance E.** Region-specific injury and therapeutic response in a term-equivalent ferret ex vivo organotypic brain slice model of oxygen-glucose deprivation. Pediatric Academic Societies 2021; virtual
59. Kolnik SE[†], Corry K, Hildahl K, Filteau J,¹ White O, Shearlock A, Moralejo D, Juul SE, **Nance E,** Wood TR. Vitamin E (Vit E) Mitigates Inflammatory and Oxidative Stress Responses in a Ferret Organotypic Brain Slice Model of Hypoxia Ischemia. Pediatric Academic Societies 2021; virtual
58. Joseph A.^{1†}, Liao R.¹, Zhang M.¹, Helmbrecht H.¹, McKenna M.¹, Filteau J.¹, **Nance E.** Injury severity impacts nanoparticle delivery to microglia in the ischemia brain. Controlled Release Society Annual Meeting, June 2020 *Virtual
57. Ball B.^{2†}, McKenna M.¹, **Nance E.** A Fluorescence-Based Approach for Characterizing Changes in Perineuronal Net Morphology. UW Undergraduate Research Symposium; Seattle, WA; May 2020 *Virtual
56. Ye Z.^{2†}, Zhang M.¹, **Nance E.** Quantifying the Effect of Brain-Derived Extracellular Vesicles on Microglial Cells In Vitro. UW Undergraduate Research Symposium; Seattle, WA; May 2020 *Virtual
55. Chungyoun M.^{2†}, Liao R.¹, **Nance E.** Optimizing Polymeric Nanoparticle Formulation and Characterizing PEG Degradation. UW Undergraduate Research Symposium; Seattle, WA; May 2020 *Virtual
54. Filteau J.^{1†}, McKenna M.^{1†}, **Nance E.** Establishing methods to better characterize brain extracellular matrix structure and cell-cell interactions in the developing brain. UW Chemical Engineering Graduate Recruitment Weekend; Seattle, WA; February 2020
53. Joseph A.^{1†}, Liao R.^{1†}, Nyambura C.¹, Hildahl K., **Nance E.** Nanotechnology for therapeutic applications in the developing brain. UW Chemical Engineering Graduate Recruitment Weekend; Seattle, WA; February 2020
52. Helmbrecht H.^{1†}, Lin R.¹, McKenna M.¹, Shackelford D.^{1†}, **Nance E.** Data science for developing analysis and prediction tools for neural images and videos. University of Washington Chemical Engineering Graduate Recruitment Weekend; Seattle, WA; February 2020
51. McKenna M.^{1†}, Pontes H.², Ball B.², **Nance E.** Characterizing changes in brain extracellular matrix structure using multiple particle tracking. BMES Annual Meeting; Philadelphia PA; October 2019
50. Joseph A.^{1†}, Chen C-C.¹, Corry K., Wood T., Snyder J., Juul S., Parikh P., **Nance E.** (2019) Curcumin-loaded brain-penetrating nanoparticles for treatment of neonatal HIE. BMES Annual Meeting; Philadelphia, PA; October 2019
49. Curtis C.^{1†}, Helmbrecht H.¹, McKenna M.¹, Shackelford D.¹, Zhang M.¹, **Nance E.** Implementing data science approaches at the interface of multi-particle tracking and histology datasets. UW Chemical Engineering Graduate Student Symposium; Seattle, WA; September 2019
48. Liao R.^{1†}, Pon J.², Chungyoun M.², **Nance E.** Optimization and detoxification of enzyme-encapsulating polymeric nanoparticles for treating glutamate excitotoxicity. UW Chemical Engineering Graduate Student Symposium; Seattle, WA; September 2019
47. Adebayo T.^{2†}, Zhang M.¹, **Nance E.** Quantum Dot Toxicity and Intracellular Uptake on BV-2 Cells, GeNom ALVA Research Poster Session; Seattle, WA; August 2019
46. Joseph A.^{1†}, Simo G.², Gao T.², **Nance E.** Surfactant choice in nanoparticle formulation drives nanoparticle behavior and fate in the brain. Controlled Release Society Annual Meeting. Valencia, Spain; July 2019

45. Pontes H.^{2†}, McKenna M.¹, Curtis C.¹, **Nance E.** Characterizing microstructural changes in perineuronal nets in the presence of neuroinflammation and oxidative stress. UW Undergraduate Research Symposium; Seattle, WA; May 2019
44. Rhodes E.^{2†}, McKenna M.¹, Stansfield S., **Nance E.** Deep learning-based image analysis to extract brain region features. UW Undergraduate Research Symposium; Seattle, WA; May 2019
43. Pon J.^{2†}, Liao R.¹, **Nance E.** Optimizing polymeric nanoparticle formulations for the encapsulation of enzyme therapeutics. UW Undergraduate Research Symposium; Seattle, WA; May 2019
42. Pontes H.^{2†}, McKenna M.¹, Curtis C.¹, **Nance E.** Characterizing microstructural changes in perineuronal nets in mGluR5 knockout model with hallmarks of autism spectrum disorder. Pediatric Academic Societies Annual Meeting; Baltimore, MD; April 2019
41. Hildahl K.[†], Toghiani D.², **Nance E.** Development of an LPS-induced model of pre-adolescent anxiety and depression to study the effect of neuroinflammation. Pediatric Academic Societies Annual Meeting; Baltimore MD; April 2019
40. Curtis C.^{1†}, McKenna M.¹, **Nance E.** Using feature datasets of nanoparticle diffusion to predict parameters of the brain microenvironment. Society of Biomaterials Annual Meeting, Seattle WA; April 2019
39. Joseph A.^{1†}, Liao R.¹, Zhang M.¹, Nyambura C.¹, Filteau J.¹, **Nance E.** Nanotherapeutics for developmental brain injury. UW Chemical Engineering Graduate Recruitment Weekend; Seattle, WA; March 2019
38. Joseph A.^{1†}, Liao R.¹, Rhodes E.², Pontes H.², Pon J.², **Nance E.** Surfactant effects on biodegradable polymeric nanoparticle behavior in the brain. 16th International and Nanomedicine Drug Delivery Symposium; Portland, OR; September 2018
37. McKenna M.^{1†}, Pontes H.², Curtis C.¹, Broadwell S.², **Nance E.** Using a multiple particle tracking technique to identify changes in extracellular matrix structure in the developing brain. 16th International and Nanomedicine Drug Delivery Symposium; Portland, OR; September 2018
36. Liao R.^{1†}, **Nance E.** Superoxide Dismutase-Encapsulating Brain-Penetrating Nanoparticles for the Treatment of Glutamate Excitotoxicity. 16th International Nanomedicine and Drug Delivery Symposium; Portland, OR; September 2018
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27. Curtis C.^{1†}, **Nance E.** Modeling transport in the brain microenvironment. AIChE Annual Meeting; Minneapolis, MN; October 2017
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