

# Paul Kang

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## EDUCATION

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**University of British Columbia**

*Bachelor of Science: Major in Chemistry, Minor in Data Science*

**British Columbia, CA**

*June 2020*

## TECHNICAL SKILLS

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### Programming Languages

R  
Python  
commandline  
bash  
SQL

### Computational Programs

*VASP* 2016

characterized copolymer PEDOT:PSS

*Gaussian* 2017

ran batch calculations of simple molecules using basis set incompleteness potentials (BSIPs) in tandem with conventional density functional theory methods compared with benchmarked experimental and calculated data from CCCBDB to determine accuracy and precision of new error corrections

*GAMESS* 2019

characterized simple molecules' thermodynamic properties and IR spectra such as benzene and phenanthroline via Hartree-Fock method simulated formation of kinetic and thermodynamic products of a Diels-Alder Reaction with ethene and butadiene

## NOTABLE COURSES

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**CHEM 422Z: Special Topics in Chemistry - Computational Chemistry** 2017

introductory computational chemistry course taught of basis sets and practiced basic computational calculations such as energy minimization, spectra prediction and transition-state searching

**CHEM 330: Advanced Organic Chemistry** 2018

application of carbonyl group chemistry, cyclisation reactions, conformational analysis and rearrangement reactions in organic synthesis

**MATH 319: Introduction to Partial Differential Equations** 2019

explored methods of variable separation, Fourier series, heat, wave and Laplace's equations as well as eigenfunction expansions

**MATH 339: Introduction to Dynamical Systems** 2019

non-linear systems and iteration of functions, flows, phase portraits, periodic orbits, chaotic attractors, fractals and invariant sets

**CHEM 462: Advanced Inorganic Chemistry Laboratory** 2019

advanced lab course that examined various electronic phenomena exhibited by inorganic structures

- CHEM 464: Advanced Physical and Biophysical Chemistry Laboratory** 2019  
advanced lab course that provided an in depth examination of various quantum phenomena
- COSC 303: Numerical Analysis** 2020  
Numerical techniques for basic mathematical processes and their analysis. Taylor polynomials, root-finding, linear systems, eigenvalues, approximating derivatives, locating minimizers, approximating integrals, solving differential equations.
- DATA 311: Machine Learning** 2020  
Regression, classification, resampling, model selection and validation, fundamental properties of matrices, dimension reduction, tree-based methods, unsupervised learning.

## WORK IN PROGRESS

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- Directed Research Under Dr. Eric Foxall** June 2020  
examining the effect of individual and environmental variation on the phases of a stochastic population growth model

## REFERENCES

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- Dr. Eric Foxall** Assistant Professor, Tenure-Track  
efoxall@mail.ubc.ca
- Dr. Jeffrey Therrien** Assistant Professor  
(250)807-8028  
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