

## PhD student announcement in environmental chemistry and advanced data analytics

Topic: Use advanced data analytics and high resolution mass spectrometry data to identify the unique sources of pollution that are contaminating water bodies across different landscapes.

Dr. Gerrad Jones is an assistant professor at Oregon State University in the Department of Biological and Ecological Engineering and is looking for a creative and highly motivated Ph.D. student to start in the Fall of 2019 in *either* the department of Biological and Ecological Engineering or the Water Resources Graduate Program.

Interested students should submit a cover letter stating your research interests and a brief summary of your technical experience, a C.V. with names and contact information of at least two references, and a writing sample.

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Bodies of water are chemical data loggers for watershed processes as they contain tens of thousands of chemicals derived from upstream processes. While some of these chemicals are ubiquitous in the environment, others are highly specific and represent “fingerprints” of their sources. When detected in the environment, these chemical fingerprints could help identify the most likely pollutant sources degrading water quality. By mining chemical data, we can identify these chemical fingerprints and use them to better protect our global water resources.

This project will consist of approximately equal proportions of field work, lab work, and computational analyses. The chosen student will acquire general laboratory skills and instrument analysis skills. By the end of the project, the student will have gained considerable experience in data analysis, especially with various machine learning tools and GIS.

Required Qualifications:

- Students must be creative, excited, and willing to fail. Research is ~80% problem solving, and most ideas don't work as originally planned. However, with creative out-of-the-box thinking, any problem can be overcome. Therefore, it is necessary for students to take ownership of their project and take the path less traveled to find creative solutions to move forward.

Preferred Qualifications include any combination of the following:

- MS in science, technology, engineering, or math (although accomplished BS students with technical skills will be competitive).
- Experience with programming (Python, R, or other programming language).
- Comfortable with statistical (good) or machine learning/advanced statistical analysis (better).
- Experience with mass spectrometry instruments.
- Field work experience.
- Experience troubleshooting projects.

## Department of Biological & Ecological Engineering

This line of research is challenging, and as a result, there is a lot of progress that can be made by creative individuals who are willing to work hard and can find unorthodox solutions to problems. Therefore, ***all highly motivated students, regardless of national origin, age, gender, sexual orientation, or creed are encouraged to apply.*** For more information, please contact Dr. Jones directly ([Gerrad.Jones@oregonstate.edu](mailto:Gerrad.Jones@oregonstate.edu)), and for more information on his research interests, please visit his lab page at (<http://agsci-labs.oregonstate.edu/ecochem/>).

### Useful links

<https://bee.oregonstate.edu/>

BEE Department site

<https://oregonstate.edu/gradwater/>

Water Res. Grad. Program site

<http://gradschool.oregonstate.edu/>

OSU's graduate school

<http://cgrb.oregonstate.edu/>

Biocomputing at Oregon State

<http://www.looscomputing.ch/eng/enviMass/overview.htm>

Information on analytical software