

September 11, 2025

Dear Deep Springs Community,

I am submitting my candidacy for your **Herbert Reich Chair of Natural Science** position. As a researcher and teacher whose career has spanned biology, physics, and chemistry, I am equipped to offer a broad range of theoretical and experimental science to Deep Springs students, tailored specifically for the unique needs of the community. I have been a Professor of Physics at Portland State University since 2017, and was previously tenured Associate Professor of Biomedical Engineering at McGill University, a graduate-only department within the medical school.

In Winter 2024, I taught a Molecular Cloning course at Deep Springs, and played a substantial role in setting up and equipping the college's wet lab. If I were to return, many (but not all) of my efforts would be focused on wet-lab courses and research, and on further development of this laboratory for molecular biology, chemistry, and bioinformatics.

I also plan to maintain active research associated with sampling and sequencing microorganisms from local bodies of water. Deep Springs Lake is a unique resource whose microbiome is almost completely unexplored, providing an opportunity for teaching and research related to sequencing and cultivating the organisms that live in the lake and surrounding watershed. I hope to offer students a chance to do publishable research outside of formal coursework in a way that is accessible to their schedules and backgrounds.

While on campus, I spent a good deal of time with Brian Hill discussing the upcoming end of his term and ideas for where the natural sciences program could go after his departure. I audited his Quantum Mechanics course and spent an evening observing with him at the telescope. Both of these contributions of Brian's are immensely valuable, and I would work to maintain both astronomy and theoretical physics offerings to the student body.

Along with science, I have also been active in the literary world, publishing and judging science fiction novels and short stories and editing both fiction and non-fiction. I was an enthusiastic participant in Shakespeare Week at Deep Springs, and look forward to more literary and linguistic interactions inside and outside of courses. I have a Quebec Certificate of Written French and can teach French language and literature courses or independent studies.

Ideas for courses include:

1. Optics. Classical and some quantum optics, and how microscopes, telescopes, and other imaging systems work. May include a laboratory component using the DIY microscope system currently in the wet lab.
2. Methods of molecular biology and biophysics (similar to previous course). Laboratory based. Topics: gene cloning; DNA and RNA therapeutics; nanoscience; fluorescence labeling and imaging; instrumentation; protein purification; omics.
3. Toxicology in the natural and cultivated world. Topics: fundamentals of toxicology (how chemicals are absorbed and distributed, dose/response); naturally occurring toxins and wilderness survival; toxins and genetic modifications in agriculture and the associated scientific and ethical controversies.
4. Quantum mechanics and modern physics. Real quantum mechanics may be offered tailored to the freshman/sophomore level, with mathematical supplementation as needed.
5. Thermodynamics and statistical mechanics, with applications to biological systems such as polymers.

Ideas for independent studies include bioinformatics/sequencing related to the Deep Springs watershed; Science Fiction; French/Quebecois literature; and other topics in physics such as classical mechanics or electricity & magnetism.

I am also an avid bikepacker and hiker, and anticipate helping out with the Bike Shed and the Feeble Effort, and in possibly leading guided bikepacking outings for interested students or helping with logistics for student bike/hike outings to improve safety and success.

Attached please find a CV, a statement of teaching philosophy and experience, and a list of professional works.

Thank you for your time and consideration.

Sincerely,



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