Faculty Member Contact Information

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Contact Info	
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1 Funded, 1 Unfunded URCA Assistant(s)

Are you willing to work with students from outside of your discipline? If yes, which other disciplines?

- Yes

How many hours per week will your student(s) be required to work in this position?
(Minimum is 6 hours per week; typical is 9)

- 6, 7 or 8

Will it be possible for your student(s) to earn course credit?

- Yes, in POLS 400; ENSC 498; ENSC 499; possible internship credit in political science for 2 credit hours.

Location of research/creative activities:

- SW 2135

Brief description of the nature of the research/creative activity?

- Fracking in Texas draws heavily on surface and groundwater sources, yet quantifying their water use and abuse remains a challenge. Oil and gas operators are often exempt from permitting and reporting requirements due to legal gaps in oversight. Hydraulic fracturing in the Permian Basin has transformed energy production in Texas but has also intensified pressure on limited water resources, raising concerns about aquifer depletion, contamination, and long-term sustainability. This study evaluates how legal exemptions, wastewater injection practices, and limited reporting obscure the true scale of industrial water use. It is hypothesized that federal and state exemptions particularly the Energy Policy Act of 2005 and Texas Water Code §36.117 are linked to significant gaps in groundwater reporting and chemical disclosure; and while wastewater reuse has higher

direct costs, it is economically balanced by the avoided risks of injection, including seismicity, contamination, and regulatory liability. A mixed-methods approach integrates spatial mapping of wells, aquifers, and seismicity in ArcGIS Pro; policy and legal review; and sentiment analysis of 55,000 fracking-related tweets. Anticipated results include evidence that wastewater injection correlates with seismicity hotspots, that reuse of wastewater is problematic and that public discourse emphasizes environmental risks over economic benefits.

Brief description of student responsibilities?

- Similar to my last book publication this student(s) will complete a project on the problems with moving forward with renewable energy and climate change policies which may provide a direction for future work and student collaborations. URCA students with experience and knowledge with predictive analysis, Python coding, AI, Excel, and ARC GIS Pro is preferred but not necessary for applicants.

URCA Assistant positions are designed to provide students with *research or creative activities* experience. As such, there should be measurable, appropriate outcome goals. What exactly should your student(s) have learned by the end of this experience?

- The URCA student(s) will support a project examining how public discourse around fracking relates to environmental policy attention in Texas. Responsibilities will include reviewing and validating legislative data for relevance to fracking and environmental risk, assisting with coding policy events, and helping prepare datasets for time-series analysis. The assistant may also contribute to organizing and documenting social media data used to measure narrative framing and public attention. This project is about finding innovative "big data" to answer environmental science questions about natural resource management and policy. Student(s) will be part of an academic presentation and article submission as this work is a continuation of 2026 conference paper.

<u>Requirements of Students</u>

If the position(s) require students to be available at certain times each week (as opposed to them being able to set their own hours) please indicate all required days and times:

- Student(s) can set his/her/their own work schedule and many of the hours can be done remotely with a computer that has sufficient capacity.

If the location of the research/creative activities involves off campus work, must students provide their own transportation?

- Some of the work will require meetings at the University and workspace will be provided on campus.

Must students have taken any prerequisite classes? Please list classes and preferred grades:

- No prerequisites are needed or required for this opportunity.

Other requirements or notes to applicants:

- In addition to some predicative analytical skills, I would like applicants with strong writing and communication skills.