Stanford



Randall Holmes

Lecturer, Emmett Interdisciplinary Program in Environment and Resources

Curriculum Vitae available Online

Bio

BIO

After completing service in the U.S. Army, Dr. Holmes earned his BS in Civil and Environmental Engineering, MS in Earth System Science, and PhD from Stanford's Emmett Interdisciplinary Program in Environment and Resources (E-IPER) focused on sustainable groundwater management in California. As an E-IPER MS Lecturer, Dr. Holmes co-designs and delivers curriculum that bridges theory with practical applications exemplified by the E-IPER MS Capstone Seminar. He creates collaborative learning environments where students develop critical systems-thinking skills through hands-on engagement with complex sustainability challenges. Dr. Holmes' teaching philosophy emphasizes an inclusive, problem-posing education with pedagogical approaches that prepare diverse student populations for both academic success and real-world problem-solving. His interdisciplinary background enables him to connect students with cross-cutting perspectives essential for addressing today's most pressing environmental and resource sustainability issues.

ACADEMIC APPOINTMENTS

- Lecturer, Emmett Interdisciplinary Program in Environment and Resources

HONORS AND AWARDS

- Bronze Star Medal, U.S. Army (2006-2007)

SERVICE, VOLUNTEER, AND COMMUNITY WORK

- Undergraduate Ambassador (11/11/2013 - 11/11/2017)

Teaching

COURSES

2026-27

- Capstone Project Seminar in Environment and Resources: ENVRES 290 (Aut, Win, Spr)
- Graduate Practicum in Environment and Resources: ENVRES 270 (Aut)
- Interdisciplinary Thinking for Environmental and Resource Challenges: ENVRES 280 (Spr)

2025-26

- Capstone Project Seminar in Environment and Resources: ENVRES 290 (Aut, Win, Spr)
- Environmental Research Design Seminar: ENVRES 315 (Win)
- Graduate Practicum in Environment and Resources: ENVRES 270 (Spr)
- Interdisciplinary Thinking for Environmental and Resource Challenges: ENVRES 280 (Spr)

2024-25

- Capstone Project Seminar in Environment and Resources: ENVRES 290 (Aut, Win, Spr)
- Introduction to Environmental and Resource Systems: ENVRES 280 (Spr)

2023-24

- Citizenship in the 21st Century: COLLEGE 102 (Win)
- Environmental Sustainability: Global Predicaments and Possible Solutions: COLLEGE 106 (Spr)
- Why College? Your Education and the Good Life: COLLEGE 101 (Aut)

Publications

PUBLICATIONS

- **Idealized Shale Sorption Isotherm Measurements to Determine Pore Capacity, Pore Size Distribution, and Surface Area** *Energy & Fuels*
  Holmes, R. T., AlJamaan, H., Vishal, V., Wilcox, J., Kovscek, A. R.
  2019; 33 (2): 665-676
- **CO2 Storage and Flow Capacity Measurements on Idealized Shales from Dynamic Breakthrough Experiments** *ENERGY & FUELS*
  Aljamaan, H., Holmes, R., Vishal, V., Haghpanah, R., Wilcox, J., Kovscek, A. R.
  2017; 31 (2): 1193-1207
- **Selection of shale preparation protocol and outgas procedures for applications in low-pressure analysis** *ENERGY & FUELS*
  Holmes, R. T., Rupp, E., Vishal, V., Wilcox, J.
  2017; 31 (9): 9043–9051
- **Methane and CO2 adsorption capacities of kerogen in the Eagle Ford shale from molecular simulation** *ACCOUNTS OF CHEMICAL RESEARCH*
  Psarras, P., Holmes, R. T., Vishal, V., Wilcox, J.
  2017; 50 (8): 1818–1828
- **Tunable Polyaniline-Based Porous Carbon with Ultrahigh Surface Area for CO2 Capture at Elevated Pressure** *ADVANCED ENERGY MATERIALS*
  He, J., To, J. W., Psarras, P. C., Yan, H., Atkinson, T., Holmes, R. T., Nordlund, D., Bao, Z., Wilcox, J.
  2016; 6 (14)
- **A 100% wind, water, sunlight (WWS) all-sector energy plan for Washington State** *RENEWABLE ENERGY*
  Jacobson, M. Z., Delucchi, M. A., Bazouin, G., Dvorak, M. J., Arghandeh, R., Bauer, Z. A., Cotte, A., de Moor, G. M., Goldner, E. G., Heier, C., Holmes, R. T., Hughes, S. A., Jin, et al
  2016; 86: 75-88