

# AMANDA NICOLE HUGHES

Department of Geosciences, University of Arizona, 1040 E. 4<sup>th</sup> St., Tucson AZ 85721  
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## EDUCATION

### Harvard University

Cambridge, MA

PhD., May 2012, and M.A., 2009, Dept. of Earth and Planetary Sciences

*Dissertation:* Insights into contractional fault-related folding processes based on mechanical, kinematic, and empirical studies

### Washington and Lee University

Lexington, VA

B.S. with Honors in Geology, June 2006, *summa cum laude*

*Honors thesis:* Fold simplification and fault estimation for inverse modeling of fault-bend folding

## EMPLOYMENT

**Associate Professor of Practice, Department of Geosciences, University of Arizona**, Aug. 2024-present

**Assistant Professor of Practice, Department of Geosciences, University of Arizona**, Aug. 2019-Aug. 2024

**Research Scientist, Department of Geosciences, University of Arizona**, Aug. 2016-Aug. 2019 Tucson, AZ

Research on structural geology method development, integrated interpretation of geologic and geophysical data and mechanical modeling to study structural growth, stress and strain in the crust

**Chevron Energy Technology Company, Earth Science Department**

Houston, TX

*Interpretive Imaging Strategic Research*, November 2015-July 2016

Development of new methods integrating structural kinematic modeling with geophysical imaging

*Structural Geology Technical Services*, December 2013-October 2015

Structural geology and tectonics analyses to support exploration and new ventures activities focused on West Africa, Middle East, South Caspian Sea, Gulf of Mexico

*Exploration and New Ventures*, July 2012-November 2013

Integrated geologic and geophysical analysis, exploration planning focused on Southeast Asia and Nigeria

**Carnegie Institute of Washington, Department of Terrestrial Magnetism**

Washington, DC

**Research Intern**, 2005

Directivity analysis and fault plane resolution of intermediate and deep seismicity in the Tonga subduction zone

## PROFESSIONAL SERVICE AND EXPERIENCE

**University Service:** College of Science Faculty Council (2025-present), Outreach committee (2017-present),

Graduate Policy committee (2023-present), Undergraduate Policy committee (2021-present), Computing

Resources Committee (2017-2020).

**Professional service:** Geological Society of America Geophysics and Geodynamics Division Secretary/Treasurer,

2023-present, Geological Society of America Joint Technical Program Committee Representative, 2023-

present, Arizona Geological Society executive committee and councilor, 2025-present.

**Peer reviewer** for *Tectonics*, *Geology*, *GSA Bulletin*, *Journal of Structural Geology*, *Science Advances*,

*Geophysical Research Letters*, *AAPG Bulletin*, *Bulletin of the Seismological Society of America*, *Geosphere*,

*Journal of Asian Earth Sciences*, *Tectonophysics*, *Journal of Geophysical Research (Solid Earth and Earth*

*Surface)*, *Interpretation*, *Frontier Research in Earth Science*, *Earth Science Reviews*, *AAPG Special*

*Publications*.

**Session co-convenor:** “*Structural Geology in Ore Deposit Genesis*,” Society for Geology Applied to Mineral

Deposits (2025), “*Faults, Fractures, and Geomechanics for the Energy Transition*,” GSA Annual Meeting, San

Antonio, TX (2025), “*Interdisciplinary Insights into Fault zone Properties and Faulting Processes*,” GSA

Annual Meeting, Anaheim, CA (2024), “*Geophysical Constraints on Crustal Stress and Structure in the Age of Machine Learning*,” AGU Annual Meeting, New Orleans, LA (2021), “*Folding: Processes, Observations, and*

*Consequences*” and “*Structural Geology and Geomechanics in Applied Geosciences*,” GSA Annual Meeting,

Phoenix, AZ (2019), “*Folding: causes and consequences*,” GSA Annual Meeting, Seattle, WA (2017), and

Indianapolis, IN (2018); “*Tectonics of Western North America*,” Structural Geology and Tectonics Forum,

Tempe, AZ (2018).

**Grant review panelist:** NSF (2022), USGS (2018).

**Professional certifications:** Part 107 FAA Remote Pilot Certification (current).

## HONORS AND AWARDS

- American Rock Mechanics Association Case Study Award, 2023 (with co-authors Reeher and Busetti)

- AAPG Student Oral Presentation Finalist, 2009
- Harvard Bok Center Certificate of Distinction in Teaching, 2009, 2011
- Goldwater Scholarship 2005, Phi Beta Kappa 2005, Omicron Delta Kappa 2006
- American Institute for Professional Geologists Scholarship, 2005
- Christian A. Johnson Fellow, R.E. Lee Research Program, 2004
- George Washington Honors Scholar, Washington & Lee Univ. 2002-2006

## TEACHING/ADVISING EXPERIENCE

### Professional courses

<b>Tectonic and Structural Framework for Precious Metal Deposits in North America</b> (Society for Geology Applied to Mineral Deposits, Co-instructor)	August, 2025
<b>Structural Geology for Geotechnical Professionals</b> (UA Geotechnical Center for Excellence Course, Technical Advisor and Course Co-instructor)	2023-present
<b>Structural Geology for Exploration and Mine Geologists</b> (AGS/UA Lowell Program Course, Co-instructor)	2022-present
<b>Seismic Interpretation of Compressive Structures, Canadian Rockies</b> (AAPG Field Course, Teaching Fellow)	2010

### University of Arizona Department of Geosciences courses

Tucson, AZ

<b>GEOS 251 Introduction to Physical Geology</b>	<b>Fall, 2022</b>
<b>GEOS 304 Structural Geology</b>	<b>Fall, 2020-present</b>
<b>GEOS 434/534 Exploration Seismology</b>	<b>Fall, 2022-present</b>
<b>GEOS 477/577 Active Tectonics</b>	<b>Fall, 2019-present</b>
<b>GEOS 421/521 Energy Geosciences</b>	<b>Spring, 2018-present</b>
<b>GEOS 496/596 Geologic Structures of the Colorado Plateau, co-taught</b>	<b>Spring, 2019</b>
<b>GEOS 496/596 Advanced Structural Analysis of Core Complexes, co-taught</b>	<b>Spring, 2020</b>
<b>GEOS 596E Interpretation and Modeling of Geologic Structures, co-taught</b>	<b>Spring, 2022</b>
<b>GEOS 496/596 Future of Energy, co-taught</b>	<b>Spring, 2024</b>
<b>Workshop on Cross Section Construction and Restoration, co-taught</b>	<b>Fall, 2016</b>
<b>Guest lecturer, Seismic data processing (GEOS 469/569), Structural Geology (GEOS 304), Introduction to Exploration Seismology (GEOS 434/534), Water Quality Issues (HWRS 204), Earthquake and Volcano Hazards (GEOS 596A), Machine Learning in Geophysics (GEOS 596), Physical Geology (GEOS 251)</b>	

#### **Advising (Fall 2017 to present):**

- **Primary advisor for 1 graduated PhD and 5 graduate MS students, 2 B.S. honors thesis students**
- **Served on committees for 3 additional graduated MS students and 5 graduated PhD students**
- **Currently serving on 2 MS and 3 PhD student committees**
- **Independent research advisor for >14 undergraduate students**

### Chevron Energy Technology Company

Houston, TX

#### **Instructor/Co-instructor:**

- **Applied concepts of structural geology (2014-2016)**
- **Growth structures, salt tectonics, and basin analysis field school, Spanish Pyrenees (2013-2016)**
- **Organized internal efforts for curriculum evaluation and development for course offerings in structural geology and tectonics**

### Harvard University

Cambridge, MA

#### **Teaching Fellow, Department of Earth and Planetary Sciences, 2007-2011**

- **Earth Resources and the Environment (Spring 2011, Spring 2009)**
- **Structural Geology (Fall 2009)**
- **Natural Hazards (Fall 2007, Fall 2008)**

#### **Undergraduate Research Advisor (Summer 2011)**

## PUBLICATIONS

- Reeher, L.J.\*, S. Buseti, **A.N. Hughes**, G.H. Davis (in review), Stress and Rock Failure Near Salt Bodies: Insights from Field Observations, Kinematic Modeling, and Mechanical Analysis near Arches National Park, Paradox Basin, Utah, *Journal of Geophysical Research*.
- Wellman, E.C.\*, D. Riley, **A.N. Hughes**, N. Risso, M. Momayez, J. Kemeny (2025), A proposed concept for classifying uniaxial compressive strength (UCS) from SWIR hyperspectral data, *Engineering Geoscience*.

- Hanagan, C.\*, E. Mandler, R. Bennett, L. Chiaraluce, M. Gottlieb, A. Gualandi, **A.N. Hughes**, W. Johnson, D. Mencin, S. Marzorati (2025), Characterization and validation of tidally calibrated strains from the Alto Tiberina Near Fault Observatory Strainmeter Array (TABOO-NFO-STAR), *Seismica*, 4(1), doi: 10.26443/seismica.v4i1.1471.
- Lucero, D.\*, L. Bailey, J.-H. Kim\*, V. Voller, **A.N. Hughes**, R.W. Krantz, S.H. Lingrey, M.D. Barton, I. Barton, P. Reiners, J. McIntosh, C. Neuzil, J. Thorson, M. Person (2025), Influence of Internal Fluid Production on Red Bed Bleaching in the Paradox Basin, *Geological Society of America Bulletin* 137(5-6), 2765-2783.
- Hanagan, C.\*, R.A. Bennett, A. Barbour, **A.N. Hughes** (2024), Afterslip and creep in the rate-dependent framework: Joint inversion of borehole strain and GNSS displacements for the Mw 7.1 Ridgecrest earthquake, *Journal of Geophysical Research – Solid Earth* 129(10), e2024JB028908.
- Mahanti, S.\* E. Kiser, S. Beck, **A.N. Hughes** (2024), Seismicity and Present-Day Crustal Deformation in the Southern Puna Plateau, *Journal of Geophysical Research – Solid Earth* 129(12), e2024JB028918.
- Mills, M.M.\*, A.S. McEwen, **A.N. Hughes**, J.E. Kim, C. Okubo (2023), Analyzing spatial distributions and alignments of pitted cone features in Utopia Planitia on Mars, *Icarus*, 115825.
- Davis, G.H., E. Bos Orent\*, C. Clinkscales\*, F.R. Ferroni\*, K.A. Guns\*, G.E. Gehrels, S.W.M. George, C.E. Hanagan\*, **A.N. Hughes**, A. Iriondo, G. Jepson, C. Kelty, R.W. Krantz, B.M. Levenstein\*, S.H. Lingrey, D.P. Miggins, T. Moore\*, S.E. Portnoy\*, L.J. Reeher\*, J.W. Wang\* (2023) *Kinematic, mechanical, and temporal emergence of the Catalina detachment zone, Rincon Mountains metamorphic core complex, Tucson, AZ, GSA Memoirs*.
- Reeher, L.\*, **A.N. Hughes**, G.H. Davis, D. Ferrill, J. Kemeny, 2023. Geologic evidence for a non-linear failure criterion, *Journal of Structural Geology* 166, p. 104773.
- Henriquez, S.\*, P.G. Decelles, B. Carrapa, **A.N. Hughes**, 2023, Kinematic evolution of the central Andean retroarc thrust belt in northwestern Argentina and implications for coupling between shortening and crustal thickening, *GSA Bulletin*, <https://doi.org/10.1130/B36231.1>.
- Dunham, A.M.\*, E. Kiser, J.S. Kargel, U.K. Haritashya, C.S. Watson, D.H. Shugar, **A.N. Hughes**, P.G. DeCelles, 2022, Topographic control of ground motions and landslides from the 2015 Gorkha earthquake, *Geophysical Research Letters*, 127(5), e2021JB023589.
- Hanagan, C.\*, R.A. Bennett, L. Chiaraluce, **A.N. Hughes**, M. Cocco, 2022, Implications of receiver plane uncertainty for the static triggering hypothesis, *Journal of Geophysical Research—Solid Earth*, 127(5), e2021JB023589.
- Reeher, L.J.\*, S. Busetti, **A.N. Hughes**, 2022, Field evidence and elastic dislocation modeling of stress field alteration in the rock mass adjacent to salt, *Proceedings of the American Rock Mechanics Association*.
- Kiser, E., H. Kehoe\*, M. Chen, **A.N. Hughes**, 2021, Lower Mantle Seismicity following the 2015 Mw 7.9 Bonin Islands Deep-focus Earthquake, *Geophysical Research Letters* 48(13), e2021GL093111.
- Connors, C.D., **A.N. Hughes**, and S.A. Ball, 2021, Forward Kinematic Modeling of Fault-bend folding, *Journal of Structural Geology*, 143, 104252.
- Henriquez, S.\*, P. DeCelles, B. Carrapa, **A.N. Hughes**, G. Davis, P. Alvarado, 2021, Deformation history in the Puna plateau, northwestern Argentina, *Journal of Structural Geology*, 140, 104133.
- Hughes, A.N.**, 2020, Mechanical controls on structural styles in shortening environments: A discrete-element modelling approach, in Hammerstein, J.A., Di Cuia, R., Cottam, M., Zamora, G., and Butler, R.W.H, eds., *Fold and thrust belts: Structural Style, Evolution, and Exploration*, Geological Society of London Special Publications 490, p. 33-55.
- Olyphant, J.\*, R. Johnson, **A.N. Hughes**, 2017, Evolution of the Southern Guinea Plateau: Implications on Guinea-Demerara Plateau Formation using insights from seismic, subsidence, and gravity data, *Tectonophysics*, v. 717, p. 358-371.
- Eichelberger, N.W., A.G. Nunns, R.H. Groshong, **A.N. Hughes**, 2017, Direct estimation of fault depth and dip from structural relief, *American Association of Petroleum Geologists Bulletin*, v. 101, no. 5, p. 635-653.
- Carrapa, B., A. di Giulio, N. Mancin, D. Stockli, R. Fantoni, **A.N. Hughes**, S. Gupta, 2016, Tectonic significance of Cenozoic exhumation and foreland basin evolution in the western Alps, *Tectonics*, v. 35, no. 8, p. 1892-1912.
- Eichelberger, N.W., **A.N. Hughes**, and A.G. Nunns, 2015, Combining multiple quantitative structural analysis techniques to create robust structural interpretations, *Interpretation*, v. 3, no. 4, p. 89-104.
- Hughes, A.N.**, and J.H. Shaw, 2015, Insights into the mechanics of fault-propagation folding styles, *Geological Society of America Bulletin* v. 127 (11-12), p. 1,752-1,765.
- Hughes, A.N.**, N.P. Benesh, and J.H. Shaw, 2014, Mechanical Conditions that Lead to the Transition between Fault Bend and Fault-Propagation Folds: A Discrete Element Modeling (DEM) Approach, *Journal of Structural Geology*, v. 68, A, p. 121-141.

- Hughes, A.N.**, and J.H. Shaw, 2014, Fault Displacement-Distance Relationships as Indicators of Contractional Fault-related Folding Style, *American Association of Petroleum Geologists Bulletin*, v. 98, 2, p. 227-251.
- Warren, L.M., **Hughes, A.N.** and Silver, P.G., 2007, Earthquake Mechanics and Deformation in the Tonga-Kermadec Subduction Zone from Fault-Plane Orientations of Intermediate- and Deep-Focus Earthquakes, *Journal of Geophysical Research*, v. 112, B05314, doi:10.1029/2006JB004677.

#### FIELD GUIDES

- Hughes, A.N.**, 2019, GEOS 477/577: Field Guide to Active Tectonics of Southern California, 81 p.
- Hughes, A.N.**, 2011, EPS 109: Economic geology of Northeastern Pennsylvania and Northern New Jersey, 36 p.
- Hughes, A.N.** and H. Close, eds., 2008, Graduate Student Field trip to Northwestern Wyoming and Southwestern Montana, Harvard University Department of Earth and Planetary Sciences, 104 p.

#### INVITED TALKS

- Hughes, A.N.**, 2023, Structural modeling for reducing uncertainty in geologic interpretations, Arizona Geological Society Speaker Series.
- Hughes, A.N.**, 2021, Interdisciplinary geosciences: Reconciling differences, finding solutions, and building skills for the future, Colorado State University AAPG/SEG Lecture Series.
- Hughes, A.N.**, 2021, Integrating constraints on geologic structures across temporal and spatial scales: kinematics, mechanics, and implications for crustal strength, University of California Davis Earth and Planetary Sciences Colloquium.
- Hughes, A.N.** and C.D. Connors, 2020, Comparisons of mechanical and kinematic models of fold-and-thrust belt structures, AGU Annual Meeting.
- Hughes, A.N.**, 2020, The Paradox Basin as a window into the distinctive geologic structures in evaporite basins, University of Nebraska Department of Earth and Atmospheric Sciences Colloquium.
- Hughes, A.N.**, 2020, Mechanical and kinematic models of fault geometries in rift settings, Analog Modeling of Tectonic Processes Workshop.
- Davis, G.H., E. Bos Orent\*, F.R. Ferroni\*, K.A. Guns\*, G.E. Gehrels, S. George, C. Hanagan\*, **A.N. Hughes**, A. Iriondo, G. Jepson, C. Kelty\*, R.W. Krantz, B.M. Levenstein\*, S.H. Lingrey, D.P. Miggins, T. Moore\*, S.E. Portnoy\*, L.J. Reeher\*, J.W. Wang\*, 2020, Structural, geochronologic, and thermochronologic analysis of the Catalina Detachment Fault and its immediately underlying lower plate fault rocks and structures, Rincon Mountains, Arizona, GSA Annual Meeting.
- Connors, C.D., and **A.N. Hughes**, 2019, Flexible approaches to kinematic forward modeling of fault-bend folding, GSA Annual Meeting, Phoenix, AZ.
- Hughes, A.N.**, 2019, Improved interpretation of geologic structures through integrated kinematic and mechanical modeling approaches, Fort Worth Geological Society, Fort Worth, TX.
- Hughes, A.N.**, 2018, Kinematic, mechanical, and empirical approaches to an integrated understanding of fault-related folding, Shell, Houston, TX.
- Hughes, A.N.**, 2018, Improved interpretation of geologic structures through integrated kinematic and mechanical modeling approaches, Missouri S&T University, Rolla, MO.
- Hughes, A.N.**, 2017, Mechanics and kinematics of folding and faulting styles: A discrete element modeling approach, Oxford University Department of Earth Sciences, Oxford, UK.
- Hughes, A.N.**, and J.H. Shaw, 2016, Investigating the impact of mechanical properties on contractional fault-related folding style through discrete element modeling, GSA Annual Meeting, Denver, CO.

#### PRESENTATIONS AND EXTENDED ABSTRACTS

- Reeher, L.\* , **A.N. Hughes**, G. H. Davis, Empirically Constrained Elastic Dislocation Modeling of Perturbed Stress Regimes in the Rock Mass above an Active Salt Diapir during Forced Folding, 2024 Geological Society of America Annual Meeting.
- Hughes, A.N.**, B. Runyon\*, A. Bennett\*, Eugene Szymanski, M. Vanden Berg, E. Jagniecki, D.F. List, Geologic history and characteristics of the Northern Paradox Basin from integrated interpretation of 3D seismic reflection data, 2024 Rocky Mountain AAPG Annual Meeting.
- Runyon, B.\* , **A.N. Hughes**, D.F. List, E. Szymanski, M.D. Vanden Berg, E. Jagniecki, Seismic Reflection Data Constraints on Structural and Tectonic Evolution of the Northwestern Paradox Basin, Southeastern Utah, 2023 Geological Society of America Annual Meeting.
- Reeher, L.J.\* , G. Davis, **A.N. Hughes**, Regional Analysis of Laramide Deformation Across the Colorado Plateau, 2023 Geological Society of America Annual Meeting.

- Iqbal, O.\*, **A.N. Hughes**, S. Buseti, Comparison of observed and modeled fractures under variable paleostress conditions, Lisbon Valley, Paradox Basin, Utah, 2023 IMAGE Annual Meeting, Houston, TX
- Mills, M.M.\*, A.S. McEwen, **A.N. Hughes**, 2023 Spatial distribution of pitted cones in Utopia Planitia follow basin contours, Lunar Planetary Institute Contributions 2806, 1312.
- Runyon, B.\*, **A.N. Hughes**, D.F. List, E. Szymanski, M.D. Vanden Berg, Elliot Jagniecki, Variations in shortening style as a function of mechanical stratigraphy inferred from 3D seismic reflection data, northern Paradox Basin, UT, 2022 IMAGE Annual Meeting, Houston, TX.
- Iqbal, O.\*, E. Padmanabhana, **A.N. Hughes**, F.A. Abdulkareem, C. Rabe, M. Mumtaz, Competitive adsorption of CO<sub>2</sub> and CH<sub>4</sub> in shales: Implications for enhanced gas recovery and carbon sequestration, 2022 IMAGE Annual Meeting, Houston, TX.
- Runyon, B.\*, **A.N. Hughes**, D.F. List, E. Szymanski, M.D. Vanden Berg, E. Jagniecki, Tectonic evolution of the Paradox Basin with insights from 3D seismic reflection data, 2022 Rocky Mountain AAPG Annual Meeting, Denver, CO.
- Mills, M.\*, A. McEwen, C. Okubo, **A.N. Hughes**, L. Kestay, Modelling upwelling Martian fluids and resurfacing in Utopia Planitia, 2022 LPSC Conference, Houston, TX.
- Reeher, L.J.\*, **A.N. Hughes**, G.H. Davis, J. Rahl, Deciphering Laramide Stress States Across the Colorado Plateau, 2021 AGU Annual Meeting, New Orleans, LA.
- Hanagan, C.A.\*, R.A. Bennett, L. Chiaraluce, **A.N. Hughes**, Re-evaluation of the role of static stress triggering for aftershocks in Italy and California considering receiver plane uncertainty, 2021 AGU Annual Meeting, New Orleans, LA.
- Hanagan, C.A.\*, R.A. Bennett, **A.N. Hughes**, Re-evaluation of the role of static stress triggering for aftershocks following the Ridgecrest, California earthquake sequence considering receiver plane uncertainty, 2021 SCEC Annual Meeting, virtual.
- Dunham, A.\*, E. Kiser, J. Kargel, U. Haritashya, S. Watson, D. Shugar, **A.N. Hughes**, P. DeCelles, Topographic control of ground motions and landslides from the 2015 Gorkha earthquake, 2021 SCEC Annual Meeting, virtual.
- Reeher, L.J.\*, G.H. Davis, **A.N. Hughes**, J.M. Kemeny, Finding the Right Place in Mohr Circle Space, GSA 2021 Annual Meeting, Portland, OR.
- Reeher, L.J.\*, **A.N. Hughes**, G. Davis, D. Streeter, C. Julius, Mechanical characterization and failure development within Jurassic sandstones in proximity to salt structures, Paradox Basin, Southern Utah, 2020 AAPG ACE Annual Meeting.
- Reeher, L.J.\*, **A.N. Hughes**, G. Davis, A novel approach to understanding regional states of paleostress, applied to Laramide tectonics on the Colorado Plateau, 2020 GSA Annual Meeting.
- Lucero, D.\*, L. Bailey\*, M. Person, **A. N Hughes**, R. Krantz, S. Lingrey, M. Barton, P. Reiners, J. McIntosh, C. Neuzil, J. Thorson, 2020, Influence of internal fluid generation mechanisms on bleaching alteration in the Paradox Basin, GSA Annual Meeting.
- Hughes, A.N.**, and C.D. Connors, Relaxed kinematic fault-bend folding constraints informed by mechanical modeling (poster), 2019, GSA Annual Meeting, Phoenix, AZ.
- Hughes, A.N.**, L.J. Reeher\*, R.W. Krantz, S. Lingrey, G. Davis, M. Person, Stress field variability around salt structures evaluated through a comparison of natural fracture sets with mechanical models, Paradox Basin, Utah (oral), 2019, GSA Annual Meeting, Phoenix, AZ.
- Reeher, L.J.\*, **A.N. Hughes**, and G.H. Davis, Laramide deformation on the Colorado plateau analyzed through integrated structural techniques (oral), GSA Annual Meeting, Phoenix, AZ.
- Reeher, L.J.\*, G.H. Davis, **A.N. Hughes**, D. Streeter, C. Julius, Mechanical characterization and failure development within Jurassic sandstones proximate to salt structures, Paradox Basin, Southern Utah (poster), GSA Annual Meeting, Phoenix, AZ.
- Person, M., J. McIntosh, G. Ferguson, D. Lucero\*, R. Krantz, S. Lingrey, **A.N. Hughes**, P.W. Reiners, J.P. Thorson, M.D. Barton, Hydrological constraints on Lisbon Valley copper mineralization within the Paradox Basin, Utah (oral), 2019, GSA Annual Meeting, Phoenix, AZ.
- Lucero, D.\*, M. Person, **A.N. Hughes**, M.D. Barton, P.W. Reiners, Influence of internal fluid generation mechanisms on copper mineralization in the Lisbon Valley, Paradox Basin, Utah (poster), GSA Annual Meeting, Phoenix, AZ.
- Reiners, P.W., I. Barton, M.D. Barton, G.H. Davis, J. Kirk, R.W. Krantz, **A.N. Hughes**, J.C. McIntosh, M. Person, J.P. Thorson, Evolution of the Paradox Basin subsurface fluid-flow system and paleofluid-rock reaction products (poster), 2019, GSA Annual Meeting, Phoenix, AZ.

- Favorito, D.A.\*, and **A.N. Hughes**, Empirical constraints on fault displacement vectors and implications for fault mechanics and strain prediction, Taranaki Basin, offshore New Zealand (oral), 2019, AAPG Annual Meeting, San Antonio, TX.
- Hughes, A.N.**, and C.D. Connors, Flexible kinematic modeling approaches informed by observations from mechanical forward models and natural structures (oral), 2019, AAPG Annual Meeting, San Antonio, TX.
- Hughes, A.N.**, and D.A. Favorito\*, Empirical observations and mechanical implications of fault displacement vectors within a complex fault system in the Taranaki Basin, New Zealand, 2018, AGU Annual Meeting, Washington, D.C.
- Basabe-Triana, D.\*, **Hughes, A.N.**, and R. Johnson, Megasequences of the Colombian Basin (poster), 2018 AAPG Annual Meeting, Salt Lake City, UT.
- Hughes, A.N.**, Mechanical Controls on shortening styles in contractional environments, Fold and Thrust Belts: Structural Style, Evolution, and Exploration, Geological Society of London, 2017, London, UK.
- Hughes, A.N.**, Evaluating the Relative Contributions of Mechanical and Surface Conditions on the Development of Shortening Structures, (poster), GSA Annual Meeting 2017, Seattle, WA.
- Hughes, A.N.**, Investigations into the Mechanics and Kinematics of Extensional Fault Systems (oral), AAPG Annual Conferences, 2017, Houston, TX, USA.
- Eichelberger, N.W., A.G. Nunns, R.H. Groshong Jr., **A.N. Hughes**, Predicting the dip and location of master faults beneath forced folds (oral), GSA Annual Meeting 2015, Baltimore, MD, USA.
- Eichelberger, N.W., **A.N. Hughes**, and A.G. Nunns, Combining multiple quantitative structural analysis techniques to create robust structural interpretations (poster), GSA Annual Meeting 2014, Vancouver, BC, CA.
- Hughes, A.N.**, Oblique structural growth and strain partitioning in the eastern offshore Niger Delta (oral), Subsurface Characterization Forum, 2014, The Woodlands, TX.
- Hughes, A.N.**, R. Brandt, G. Snyder, M. Busby, Integrated analysis of tectonic framework and implications for the petroleum system in the South China Sea (oral), Subsurface Characterization Forum, 2014, The Woodlands, TX.
- Hughes, A.N.**, and G. Snyder, Fault framework evaluation of the Usan West Field: implications for reservoir connectivity (poster), Subsurface Characterization Forum, 2014, The Woodlands, TX.
- Hughes, A.N.**, N. P. Benesh, R. Alt II, and J.H. Shaw, A Discrete Element Modeling Approach to exploring the transition between fault-related folding styles, AGU Annual Conference, December, 2011, San Francisco, CA.
- Hughes, A.N.**, N.P. Benesh, R. Alt II\*, and J.H. Shaw, Mechanical Modeling of Fault-propagation folds and comparison with observations from seismic reflection data and analog models (oral), GSA Annual Meeting, September, 2011, Minneapolis, MN.
- Benesh, N.P., **A.N. Hughes**, R. Alt II, and J.H. Shaw, Mechanical basis of fault-bend folding (oral), GSA Annual Meeting, September, 2011, Minneapolis, MN.
- Hughes, A.N.**, and J.H. Shaw, Variations in slip as an Indicator of Fault-related folding Style (oral), AAPG Annual Meeting, June, 2009, Denver, CO.
- Connors, C.D., Levy, S. and **Hughes, A.N.** “Forward and Inverse Modeling of Fault-Bend Folding” AAPG Annual Conference, April 2007, Long Beach, CA.
- Hughes, A. N.**, Warren, L. M., Silver, P. G. “Do Old Faults Ever Die? Fault Plane Orientations of Intraslab Earthquakes in the Tonga-Kermadec Subduction Zone,” American Geophysical Union Meeting (poster), December 2005, San Francisco, CA.
- Hughes, A. N.**, Bacastow, A. L., Hannah, P. T., Connors, C. D. “Quantifying Strain in the Blue Ridge Using *Skolithos* as a Strain Marker,” National Conference on Undergraduate Research (poster), April 2005.

\* denotes a student advisee