David A. Williams
Research Professor

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Education

Ph.D., Geology, 1998. University of Alabama, Tuscaloosa, AL.
Dissertation: Analytical/Numerical Modeling of the Emplacement and Erosional Potential of Archean and Proterozoic Komatiitic Lava Flows. **Advisor:** Dr. C. Michael Lesher (now at Laurentian University, Sudbury)

M.S., Geology, 1992. Arizona State University, Tempe, AZ.
Thesis: Multispectral Studies of Selected Crater- and Basin-Filling Lunar Maria from *Galileo* Earth-Moon Encounter 1. **Advisor:** Dr. Ronald Greeley (deceased)

B.S., Astronomy & Astrophysics, 1989. Indiana University, Bloomington, IN.
Minors: Mathematics, Geology

Professional Positions

Research Professor, School of Earth & Space Exploration: Arizona State University, Tempe, AZ; July 2020-Present. Co-Investigator and Deputy Imager Lead, NASA Psyche Mission. U.S. Co-Investigator, ESA *Mars Express* Mission.

Principal Investigator, The Planetary Aeolian Laboratory (located at NASA Ames Research Center, Moffet Field, California, administered by ASU), March 2012-Present.

Director, The Ronald Greeley Center of Planetary Studies, former NASA RPIF, now NASA-supported planetary data center at Arizona State University (ASU), March 2012-Present.

Member of the Graduate Faculty (Geological Sciences), School of Earth & Space Exploration: Arizona State University, Tempe, AZ; May 2010-Present.

Associate Research Professor, School of Earth & Space Exploration: Arizona State University, Tempe, AZ; July 2012-June 2020. Co-Investigator, NASA *Dawn* Mission to Ceres; U.S. Co-Investigator, ESA *Mars Express* Mission; Co-Investigator, NASA Psyche Mission.

Faculty Research Associate, School of Earth & Space Exploration (formerly Department of Geological Sciences): Arizona State University, Tempe, AZ; August 2003-June 2012. U.S. Co-Investigator, ESA *Mars Express* Mission; Participating Scientist, NASA *Dawn* Mission to Vesta.

Visiting Assistant Professor, Department of Geological Sciences: Arizona State University, Tempe, AZ; August 2001-May 2002.

Postdoctoral Research Associate, Department of Geological Sciences: Arizona State University, Tempe, AZ; August 1998-July 2003. Associate, Solid State Imaging Team, NASA *Galileo* Mission at Jupiter.

Graduate Council Research Fellow/Graduate Research Assistant/Graduate Teaching Assistant, Department of Geology: University of Alabama, Tuscaloosa, AL; August 1994-August 1998.

Graduate Research/Teaching Associate, Department of Geology: Arizona State University, Tempe, AZ; August 1989-August 1994.

Summer Research Assistant, Sacramento Peak Solar Observatory: National Optical Astronomy Observatories, Sunspot, New Mexico; Summer 1987.

Research Grants Received

Co-Investigator: Geologic map of Huygens Landing Site, Titan, Co-Investigator: Io Thermal Emission from Juno, Co-Investigator: USGS Global Geologic Map of Ceres, Co-Investigator: Assessing Dwarf Planet

Ceres' Past and Present Habitability Potential, NASA Planetary Mission Concepts Program, 2019-2020. PI: Julie Castillo-Rogez. *Total Costs: $12,540.*

Co-Investigator: Geologic map of Huygens Landing Site, Titan, Co-Investigator: Io Thermal Emission from Juno, Co-Investigator: USGS Global Geologic Map of Ceres, Co-Investigator: Assessing Dwarf Planet Ceres' Past and Present Habitability Potential, NASA Planetary Mission Concepts Program, 2019-2020. PI: Julie Castillo-Rogez. *Total Costs: $12,540.*

Co-Investigator: Psyche Phases B-D (Williams only), Principal Investigator: Planetary Aeolian Laboratory, NASA Headquarters; 2017-2021; *Total Costs: See Appendix.*

Principal Investigator: Geologic Mapping of Ascraeus Mons, Mars, NASA Mars Data Analysis Program; 2014-2017; with Co-Investigators Jacob Bleacher and W. Brent Garry. *Total Costs: $287,745.*

Co-Investigator: Dawn – A Journey to the Beginning of the Solar System, NASA Dawn Mission to Ceres, Subcontract from UCLA, PI Christopher Russell, 2015-2019. *Total Costs: $280,413.*

Co-Investigator: A Multi-wavelength Observing Program of Io Using Adaptive Optics and Interferometric Techniques, National Science Foundation, 2014-2017; with Principal Investigator Imke de Pater.

Co-Investigator: Technology Development for a Topo Imager on the NASA Europa Clipper Mission, NASA Instrument Concepts for Europa Exploration Program, 2014; with Principal Investigator Jim Bell.

Principal Investigator: Modeling Erosion by Flowing Lava on the Moon, Mars, and Earth, NASA Planetary Geology & Geophysics Program; 2013-2017; with Co-Investigators Laszlo Keszthelyi and Brent Garry. *Total Costs: $470,000.*

Principal Investigator: Identification, Analysis, and Mapping of Putative Igneous Deposits on Asteroid 4 Vesta, NASA *Dawn* at Vesta Participating Scientists Program; 2010-2014. *Total Costs: $260,000.*

Principal Investigator: Geologic Mapping of Arsia & Pavonis Montes, Mars, NASA Mars Data Analysis Program; 2010-2014; with Co-Investigators Jacob Bleacher and W. Brent Garry. *Total Costs: $425,539.*

Principal Investigator: Geologic Mapping of Olympus Mons, Mars, NASA Mars Data Analysis Program; 2009-2012; with Co-Investigator Jacob Bleacher. *Total Costs: $272,463.*

Principal Investigator: Regional Planetary Image Facility (PI change from Ron Greeley), NASA Planetary Geology & Geophysics Program; 2011-2015; *Total Costs: Not Available.*

Principal Investigator: Planetary Aeolian Laboratory (PI change from Ron Greeley), NASA Planetary Geology & Geophysics Program; 2011-2015; *Total Costs: Not Available.*

Principal Investigator: Aeolian Patterns and Deposits Related to Small Craters (PI change from Ron Greeley), NASA Planetary Geology & Geophysics Program; 2010-2014. *Total Costs: $410,022.*

Principal Investigator: HRSC: Co-Investigation on ESA *Mars Express* Mission (PI change from Ron Greeley), NASA Mars Exploration Program, contract with JPL; 2014. *Total Costs: $86,000.*

Principal Investigator: Global Geologic Mapping of Io, Phase II: Database Construction and Regional Mapping, NASA Outer Planets Research Program; 2008-2011; with Co-Investigator Julie Rathbun. *Total Costs: $384,655.*

Principal Investigator: Worlds of Fire: A Hands-On/Minds-On Investigation of Active Volcanism on Earth and Io, NASA Education-Public Outreach Program; 2006-2009; with E/PO Lead Steven Kadel. *Total Costs: $43,197.*

Principal Investigator: Global Geologic Mapping of Io, NASA Outer Planets Research Program; 2005-2009; with Co-Investigators Laszlo Keszthelyi and David Crown. *Total Costs: $243,849.*

Co-Investigator: Studies in Planetary Volcanology, NASA Planetary Geology & Geophysics Program; 2003-2006; with Principal Investigator Ronald Greeley.

Co-Investigator: Studies in Planetary Volcanology, NASA Planetary Geology & Geophysics Program; 2002; with Principal Investigator Ronald Greeley.

Co-Investigator: Studies of the Galilean Satellites, NASA Jovian System Data Analysis Program; 1999-2001; with Principal Investigator Ronald Greeley and Co-Investigator Sarah Fagents.

Science Teams and Funded Research Collaborations

Co-Investigator, Deputy Imager Lead, NASA *Psyche* Mission to asteroid 16 Psyche, Member of the *Psyche* Science Team with responsibilities to assist in Imager development and oversee the geologic mapping of Psyche, January 2017-present.

Co-Investigator, ESA *Mars Express* High Resolution Stereo Camera Team, Co-Investigator (replacing the late Ron Greeley) of the *Mars Express* HRSC team with responsibilities for planning, processing, and analyzing images of the martian surface, February 2012-present. NASA funding ended March 2020.

Co-Investigator, NASA *Dawn* Mission to dwarf planet 1 Ceres, Member of the *Dawn* Science Team with responsibilities to oversee the geologic mapping of Ceres, January 2015-June 2019.

Participating Scientist, NASA *Dawn* Mission to asteroid 4 Vesta, Member of the *Dawn* Science Team with responsibilities to oversee the geologic mapping of Vesta, September 2010-December 2014.

Associate Investigator, ESA *Mars Express* High Resolution Stereo Camera Team, Associate member of the *Mars Express* HRSC team with responsibilities for planning, processing, and analyzing images of the martian surface, April 2003-February 2012.

Associate Member, NASA *Mars Polar Lander* Imaging Team, Associate member of the *MPL* camera team with responsibilities for planning, processing, and analyzing images of the martian south pole (mission failed on landing), January 1999-December 1999.

Associate Member, NASA *Galileo* Solid State Imaging Team, Associate member of the *Galileo* camera team with responsibilities for planning, processing, and analyzing images of the Galilean satellites, August 1998-September 2003.

Student Assistant, NASA *Galileo* Solid State Imaging Team, Graduate student assistant of the *Galileo* camera team with responsibilities for planning, processing, and analyzing images of the Moon during the Earth-Moon flybys, January 1991-August 1993.

Student Assistant, NASA *Magellan* Radar Imaging Team, Graduate student assistant of the *Magellan* radar imaging team with responsibilities for analyzing images of Venus in search of wind streaks, 1991-1992.

Professional Service

Member, AGU Harry H. Hess Medal award committee, July 2022.

Member, NASA PDS Geosciences Node Advisory Group, December 2017-Present.

Steering Committee Member, NASA Mapping and Planetary Spatial Information Infrastructure Team (MAPSIT), January 2021-Present.

NASA Planetary Missions Senior Review Panel, Group Chief, Mars Reconnaissance Orbiter panel, Feb-Mar 2022.

NASA PDS Programmatic Review Panel, July 2021. Member of NASA peer review panel.

NASA FINESST Program Proposal Review Panel, May 2021. Member of NASA peer review panel.

External Proposal Reviewer, NASA Lunar Data Analysis Program, April 2021.

RPIF Representative and Steering Committee Member, NASA Mapping and Planetary Spatial Information Infrastructure Team (MAPSIT), March 2019-Dec 2020.

Secretary, Planetary Sciences Section, American Geophysical Union, January 2019-December 2020.

Lunar Data Analysis Program (LDAP) Proposal Review Panel, June 2020. Member of NASA peer review panel.

Co-Convener and Session Chair, Small Bodies session, Geological Society of America Annual Meeting, Phoenix, AZ, Sept. 23, 2019.

Field Trip Leader, "Holey Tour" post-meeting field trip, Geological Society of America Annual Meeting, Phoenix, AZ, Sept. 26-28, 2019.

Discovery Data Analysis Program (DDAP)/Rosetta Data Analysis Program (RDAP) Proposal Review Panel, February 2019. Member of NASA peer review panel.

External Proposal Reviewer, NASA Mars Data Analysis Program, January, 2019.

Planetary Geologic Mapping Community Representative and Steering Committee Member, NASA Mapping and Planetary Spatial Information Infrastructure Team (MAPSIT), March 2017-March 2019.

External Awards Committee, Geological Society of America, July 2016-June 2018.

External Proposal Reviewer, NASA Discovery Data Analysis Program, January, 2018.

External Proposal Reviewer, NASA Mars Data Analysis Program, January, 2018.

External Proposal Reviewer, NASA OSIRIS-REx Participating Scientists Program, October, 2017.

External Proposal Reviewer, NASA Discovery Data Analysis Program, January, 2017.

Mars Data Analysis Program (MDAP) Proposal Review Panel, January 2017. Member of NASA peer review panel.

Chair, Geologic Mapping Subcommittee (GEMS), NASA Mapping and Planetary Spatial Information Infrastructure Team (MAPSIT), June 2014-March 2017.

External Proposal Reviewer, NASA Postdoctoral Program, December 2015.

Planetary Data Archiving, Restoration and Tools (PDART) Program Proposal Review Panel, Oct 2015. Member of NASA peer review panel.

Mars Data Analysis Program (MDAP) Proposal Review Panel, January 2015.

Member of NASA peer review panel.

External Proposal Reviewer, NASA Solar System Workings Program, October 2014.

Steering Committee Member, NASA Outer Planets Assessment Group (OPAG), March 2008-July 2013

Planetary Geology and Geophysics Review Panel, 2013.
Member of NASA peer review panel.

Chair, Pellas-Ryder Best Student Paper Award Committee, January 2011-March 2012

Chair, 2012 GSA Planetary Geology Division G.K. Gilbert Award Committee, November 2011-February 2012

Chair, Planetary Geology Division, Geological Society of America, November 2010-November 2011

Co-Editor, GSA Special Publication, "Recent Advances in Lunar Stratigraphy", Fall 2009-Winter 2011

First Vice Chair, Planetary Geology Division, Geological Society of America, October 2009-November 2010

Stephen E. Dwornik Planetary Geoscience Student Presentation Judge, 41st Lunar and Planetary Science Conference, Houston, Texas, March 2010.

Member, Pellas-Ryder Best Student Paper Award Committee, January 2010-December 2010.

External Proposal Reviewer, NASA Postdoctoral Program, December 2009.

Session Co-convener, Geological Society of America Annual Meeting, October 2009.
Co-organizer of conference session T91: "Eruptive Deposits as Keys to Understanding Volcanic Systems on Planetary Bodies".

External Proposal Reviewer, NASA Postdoctoral Program, August 2009.

Stephen E. Dwornik Planetary Geoscience Student Presentation Chief Judge and Judging Organizer, 40th Lunar and Planetary Science Conference, Houston, Texas, March 2009.

External Proposal Reviewer, NASA Postdoctoral Program, February 2009.

Program Committee Member, 40th Lunar & Planetary Science Conference, Houston, Texas, January 2009.

Session Co-convener, American Geophysical Union Fall Meeting, 2008.
Co-organizer of conference session P02: "Recent Advances in Planetary Volcanism".

External Proposal Reviewer, Mars Fundamental Research Program, October 2008.

Second Vice Chair, Planetary Geology Division, Geological Society of America, Oct. 2008-Oct. 2009

Session Co-convener, Geological Society of America Annual Meeting, October 2008.
Co-organizer of conference session T106: "Current Research Issues in Lunar Stratigraphy".

Stephen E. Dwornik Planetary Geoscience Student Presentation Judge, 39th Lunar and Planetary Science Conference, Houston, Texas, March 2008.

Discovery and Scout Mission Capabilities Expansion Program Review Panel, 2008.
Member of NASA peer review panel.

External Proposal Reviewer, NASA Postdoctoral Program, December 2007.

Session Co-Chair, Pardee Keynote Symposium: New Eyes and Ears at Mars, Geological Society of America Annual Meeting, Denver, Colorado, October 2007.

External Proposal Reviewer, Planetary Geology and Geophysics Program, August 2007.

Mars Data Analysis Program Review Panel, 2007.
Member of NASA peer review panel.

Stephen E. Dwornik Planetary Geoscience Student Presentation Judge, 38th Lunar and Planetary Science Conference, Houston, Texas, March 2007.

Member, NASA *Jovian System Observer* Mission Study Science Definition Team (SDT), 2007.

Program Committee Member, 38th Lunar & Planetary Science Conference, Houston, Texas, January 2007.

Secretary-Treasurer, Planetary Geology Division, Geological Society of America, Oct. 2006 – Sept. 2008

External Proposal Reviewer, MESSENGER Participating Scientist Program, October 2006.

***Cassini* Data Analysis Program Review Panel, 2006.**
Member of NASA peer review panel.

External Proposal Reviewer, Planetary Geology and Geophysics Program, August 2006.

Stephen E. Dwornik Planetary Geoscience Student Presentation Judge, 37th Lunar and Planetary Science Conference, Houston, Texas, March 2006.

Program Committee Member, 37th Lunar & Planetary Science Conference, Houston, Texas, January 2006.

External Proposal Reviewer, Outer Planets Research Program, August 2005.

External Proposal Reviewer, Planetary Geology and Geophysics Program, August 2005.

Session Co-Chair, Mars Express and HRSC I, 36th Lunar and Planetary Science Conference, Houston, Texas, March 2005.

Stephen E. Dwornik Planetary Geoscience Student Presentation Judge, 36th Lunar and Planetary Science Conference, Houston, Texas, March 2005.

Planetary Geology and Geophysics Review Panel, 2004.
Member of NASA peer review panel.
Mars Data Analysis Program Review Panel, 2004.
Member of NASA peer review panel.
Mars Fundamental Research Review Panel, 2003.
Member of NASA peer review panel.
Session Co-convener, American Geophysical Union Fall Meeting, 1999.
Co-organizer of conference session on "Ultramafic Volcanism: From Earth's Archean to Io's Present".
Steering Committee Member, Commission on Large-Volume Basaltic Provinces, International Association of Volcanology and Chemistry of the Earth's Interior (IAVCEI), 1993-1998.

Postdoctoral Supervising

Postodoctoral Associate Supervisor, Hannes, Bernhardt, Geologic mapping of Malea Planum, Mars. April 2018-June 2020.

Student Theses and Dissertations

Ph.D. Supervisory Committee member, Brendan Chapman, 2nd project advisor, *Global scale contractionas a mechanism for resurgent Martian volcanism*, Ph.D. dissertation, Arizona State University, Anticipated May 2025. Current employment: Ph.D. student, School of Earth & Space Exploration, ASU.

Ph.D. Supervisory Committee member, Madison Borrelli, 2nd project advisor, *Investigating formation of lava channels on Venus*, Ph.D. dissertation, Arizona State University, Anticipated May 2025. Current employment: Ph.D. student, School of Earth & Space Exploration, ASU.

Ph.D. Supervisory Committee Co-chair, John Christoph, 2nd project advisor, Mission Concept and Technical Feasibility of Synthetic Aperature Radar for Geologic Observation of the Subsurface of Io, Ph.D. dissertation, Arizona State University, Anticipated May 2022. Current employment: Ph.D. student, School of Earth & Space Exploration, ASU. https://sese.asu.edu/node/1844

Ph.D. Supervisory Committee Co-chair, Vincenzo Cataldo, *3-D Modeling of the Erosional Potential of Turbulent Lava Applied to Lunar Sinuous Rilles*, Ph.D. dissertation, Arizona State University, May 2022. Current employment: Staff, School of Earth & Space Exploration, ASU. https://isearch.asu.edu/profile/2095135

Ph.D. Supervisory Committee member, Sierra Ferguson, *Investigating Small-Scale Populations of Impact Craters and Tectonic Features using High-Resolution Cassini Imagery*, Ph.D. dissertation, Arizona State University, August 2021.

Ph.D. Supervisory Committee member, Zachary Torrano, *Early Solar System Processes and Parent Body Relationships Recorded by Chromium and Titanium Isotopes in Meteorites*, Ph.D. dissertation, Arizona State University, August 2020. https://isearch.asu.edu/profile/2589309

Barrett Undergraduate Honors Thesis Committee Member, Cara Courtney, *Modeling the Effects of Flow Conditions and Rheology on Lava Flows with Polyethylene Glycol*. Arizona State University, May 2020.

M.S. Supervisory Committee Co-chair, Genevieve Studer-Ellis, *Structural and Geomorphic Mapping of Northern Claritas Fossae and the Thaumasia Graben, Mars: Implications for Formation*, M.S. thesis, Arizona State University, August 2019. Current employment: Just graduated, seeking employment.

Ph.D. Supervisory Committee member, Jessica Noviello, *Identification and Quantitative Classification of Europa's Microfeatures: Implications for Microfeature Formation Models and the Europa Clipper Flagship Mission*, Ph.D. dissertation, Arizona State University, August 2019. Current employment: Postdoctoral Research Fellow, School of Eargh & Space Exploration, Arizona State University. https://sese.asu.edu/node/1300

M.S. (In Passing) Supervisory Committee Member, Emily Zawacki, *Reconstructing an explosive basaltic eruption in the Pinacate volcanic field (Sonora, Mexico)*, M.S. thesis, Arizona State University, December 2018. Current employment: Ph.D. student, School of Earth & Space Exploration, ASU. https://isearch.asu.edu/profile/2594276

M.S. Supervisory Committee Co-chair, Kyle Mohr, *Geological Mapping of Ascraeus Mons, Mars*, M.S. thesis, Arizona State University, December 2017. Current employment: Ph.D. student, School of Earth & Space Exploration, ASU. https://isearch.asu.edu/profile/2442567

Ph.D. Supervisory Committee Member, Melissa Bunte, *Geological Studies of Europa and Io*, Ph.D. dissertation, Arizona State University, December 2013. Current employment: Professor of Astronomy, Mesa Community College: http://contacts.mesacc.edu/melissa.bunte

M.S. Supervisory Committee Co-chair, Leon Manfredi, *The Volcanic History of the Tempe Volcanic Province, Mars*, M.S. thesis, Arizona State University, December, 2012. Current employment: Instructional Designer, ASU-SESE ETX Center. https://sese.asu.edu/node/1580

M.S. Supervisory Committee Member (Effective Advisor), Melissa Bunte, *Volcano-Tectonic Interactions on Io: The Zal, Hi'iaka, and Shamshu Regions*, M.S. thesis, Arizona State University, May, 2008. Current employment: Professor of Astronomy, Mesa Community College: http://contacts.mesacc.edu/melissa.bunte

Ph.D. Supervisory Committee Member (Effective Co-advisor), Jacob E. Bleacher, *Characterization of Shield Volcanoes on Earth and Mars from Slope Analyses and Lava Flow Mapping*, Ph.D. dissertation, Arizona State University, December, 2006. Current employment: Chief Exploration Scientist, NASA Advanced Exploration Systems, HEOMD.
https://www.nasa.gov/directorates/heo/aes/jacob-bleacher

Professional Organizations

American Association for the Advancement of Science (AAAS), 1998-present.
International Association of Volcanology and Chemistry of the Earth's Interior (IAVCEI), 1996-present.
American Geophysical Union (AGU), 1993-present.
Geological Society of America (GSA), Lifetime Member, Cordillera Section and Planetary Geology Division, 1991-present.
American Astronomical Society, Division for Planetary Sciences (DPS), 1992-present.
The Planetary Society, 1985-present.
National Space Society (NSS), 1996-present.
The Society of Sigma Gamma Epsilon (SGE) (Earth Science Honorary), 1990-1998.
Alpha Epsilon Lambda (AEL), (Graduate & Professional Student Honorary), 1998.
University of Alabama National Alumni Association, 1998-Present.
Arizona State University Alumni Association, Lifetime Member, 1992-Present.
Indiana University Alumni Association (IUAA), Lifetime Member, 1989-Present.

Honors and Awards

Promotion to Research Professor, School of Earth & Space Exploration, Arizona State University, July 2020.
NASA Group Achievement Award, Dawn Science Team (Ceres Encounter), 2019.
20-Year Service Award, School of Earth & Space Exploration, Arizona State University, August 2018.
Awarded Ronald Greeley Distinguished Service Award, Planetary Geology Division, Geological Society of America, October 2017.
Honored by the IAU with naming of asteroid 10,461 DAWilliams, July 12, 2014
Elected to Fellowship, Geological Society of America, May 2014
NASA Group Achievement Award, Dawn Science Team (Vesta Encounter), 2013.

Promotion to Associate Research Professor, School of Earth & Space Exploration, Arizona State University, July 2012.
10-Year Service Award, School of Earth & Space Exploration, Arizona State University, August 2008.
5-Year Service Award, Department of Geological Sciences, Arizona State University, August 2003.
Promotion to Faculty Research Associate, Department of Geological Sciences, Arizona State University, 2002.
Award for Excellence in Research by a Doctoral Student, Graduate School, University of Alabama, 1997-1998.
Award for Excellence in Research by a Doctoral Student, College of Arts & Sciences, University of Alabama, 1997-1998.
Outstanding Research Award, Graduate Research Exposition, University of Alabama, April 1998.
Outstanding Research by a Doctoral Student, Department of Geology, University of Alabama, 1998.
Outstanding Research by a Doctoral Student, Department of Geology, University of Alabama, 1996.

Courses Taught and Curriculum Development

Inquiry: Star Trek and Humanity's Future in Space (3 cr), Interplanetary Initiative, Arizona State University, 18 undergraduate and graduate students, Fall 2021.
Fundamentals of Planetary Geology (3 cr), Arizona State University, 16 undergraduate and graduate students, Fall 2018.
Planetary Volcanology (3 cr), Arizona State University, 23 undergraduate and graduate students, Spring 2018.
Planetary Volcanology (3 cr), Arizona State University, 19 undergraduate and graduate students, Fall 2014.
Special Topics: Planetary Volcanology (3 cr), Arizona State University, 10 undergraduate and graduate students, Spring 2011.
Developed lecture materials for 8-module, 3 cr Scientific Communication course, Grand Canyon University, Summer 2007.
Special Topics: Planetary Volcanology (3 cr), Arizona State University, 14 undergraduate and graduate students, Spring 2007.
Developed lecture and laboratory materials for 8-module, 3 cr Introduction to Astronomy course, Grand Canyon University, Fall 2006.
Developed lecture materials for 8-module, 3 cr Introduction to Geology course, Grand Canyon University, Summer 2006.
Co-organizer, Volcanology Seminar (1 cr), Arizona State University, ~10 undergraduate and graduate students, Fall 2004 – Fall 2005.
Special Topics: Planetary Volcanology (3 cr), Arizona State University, 14 undergraduate and graduate students, Spring 2002.
Physical Geology 101 (3 cr), Arizona State University, ~230 undergraduate students, Fall 2001.
Lifetime Certified Instructor (Astronomy, Chemistry, Geology, Mathematics), **State of Arizona Community College System**.

Guest Lectures

Guest Lecturer: Exotic Lava Flows: Komatiites, Sulfur, Carbonatites, GLG 455/598 Advanced Field Geology (3 cr), Arizona State University, 16 students, Fall 2021.
Guest Lecturer: Planetary Geology & Planetary Geologic Mapping, SESE 122 (3 cr), Arizona State University, ~25 undergraduates, Spring 2020.
Guest Lecturer: Planetary Geology & Planetary Geologic Mapping, SESE 122 (3 cr), Arizona State University, ~25 undergraduates, Spring 2019.
Guest Lecturer: Planetary Geology & Planetary Geologic Mapping, SESE 122 (3 cr), Arizona State University, ~25 undergraduates, Spring 2018.
Guest Lecturer: Dwarf Planets: Ceres and Pluto from NASA's *Dawn* and *New Horizons* Missions, Astronomy 111 (3 cr), Arizona State University, ~200 undergraduates, Fall 2017.
Guest Lecturer: The Geology of Io, Institute for Planetology, University of Münster, Münster, Germany, April 6, 2017, ~25 students and faculty.
Guest Lecturer: Dwarf Planets: Dawn at Ceres & New Horizons at Pluto, SES494/598 Outer Solar System Satellites class (3 cr), Arizona State University, ~15 undergraduates and graduate students, Spring 2017.

Guest Lecturer: Titan After *Cassini*, SES494/598 Outer Solar System Satellites class (3 cr), Arizona State University, ~15 undergraduates and graduate students, Spring 2017.

Guest Lecturer: Dwarf Planets: Ceres and Pluto from NASA's *Dawn* and *New Horizons* Missions, Astronomy 111 (3 cr), Arizona State University, ~200 undergraduates, Fall 2016.

Guest Lecturer: Asteroids and NASA *Dawn* Mission to Vesta, Asteroids seminar (3 cr), Arizona State University, ~15 undergraduate and graduate students, Spring 2014.

Guest Lecturer: Planetary Volcanology, Volcanology (3 cr), Arizona State University, ~10 undergraduate and graduate students, Fall 2013.

Guest Lecturer: Asteroids and NASA *Dawn* Mission to Vesta, Fundamentals of Planetary Geoscience (3 cr), Arizona State University, ~15 undergraduate and graduate students, Fall 2011.

Guest Lecturer: Outer Planet Satellites, Fundamentals of Planetary Geoscience (3 cr), Arizona State University, ~15 undergraduate and graduate students, Fall 2011.

Guest Lecturer: Terrestrial Planets, Fundamentals of Planetary Geoscience (3 cr), Arizona State University, ~15 undergraduate and graduate students, Fall 2011.

Guest Lecturer: Outer Planet Satellites, Fundamentals of Planetary Geoscience (3 cr), Arizona State University, ~15 undergraduate and graduate students, Fall 2010.

Guest Lecturer: Terrestrial Planets, Fundamentals of Planetary Geoscience (3 cr), Arizona State University, ~15 undergraduate and graduate students, Fall 2010.

Guest Lecturer: The Geology of Io, Geology of the Outer Planet Satellites (3 cr), Arizona State University, ~10 undergraduate and graduate students, Spring 2010.

Guest Lecturer: Overview of the Outer Planet Satellites, Geology of the Outer Planet Satellites (3 cr), Arizona State University, ~10 undergraduate and graduate students, Spring 2010.

Guest Lecturer: Outer Planet Satellites, Fundamentals of Planetary Geoscience (3 cr), Arizona State University, ~10 undergraduate and graduate students, Fall 2009.

Guest Lecturer: Terrestrial Planets, Fundamentals of Planetary Geoscience (3 cr), Arizona State University, ~10 undergraduate and graduate students, Fall 2009.

Guest Lecturer: Outer Planet Satellites, Fundamentals of Planetary Geoscience (3 cr), Arizona State University, ~10 undergraduate and graduate students, Fall 2008.

Guest Lecturer: Terrestrial Planets, Fundamentals of Planetary Geoscience (3 cr), Arizona State University, ~10 undergraduate and graduate students, Fall 2008.

Guest Lecturer: Lava Flow Emplacement, Advanced Physical Volcanology (3 cr), Arizona State University, 6 undergraduate and graduate students, Spring 2008.

Guest Lecturer: Outer Planet Satellites, Fundamentals of Planetary Geoscience (3 cr), Arizona State University, ~10 undergraduate and graduate students, Fall 2007.

Guest Lecturer: Terrestrial Planets, Fundamentals of Planetary Geoscience (3 cr), Arizona State University, ~10 undergraduate and graduate students, Fall 2007.

Guest Lecturer: Outer Planet Satellites, Fundamentals of Planetary Geoscience (3 cr), Arizona State University, ~10 undergraduate and graduate students, Fall 2006.

Guest Lecturer: Writing Scientific Papers & Proposals, Scientific Communication (3 cr), Grand Canyon University, ~2 undergraduate students, Fall 2006.

Guest Lecturer: Planetary Volcanism, Volcanology (3 cr), Arizona State University, ~15 undergraduate and graduate students, Fall 2006.

Guest Lecturer: Terrestrial Planets, Fundamentals of Planetary Geoscience (3 cr), Arizona State University, ~10 undergraduate and graduate students, Fall 2006.

Guest Lecturer: Outer Planet Satellites, Fundamentals of Planetary Geoscience (3 cr), Arizona State University, ~15 undergraduate and graduate students, Fall 2005.

Guest Lecturer: Terrestrial Planets, Fundamentals of Planetary Geoscience (3 cr), Arizona State University, ~15 undergraduate and graduate students, Fall 2005.

Guest Lecturer: Planetary Volcanism, Volcanology (3 cr), Arizona State University, ~15 undergraduate and graduate students, Fall 2004.

Guest Lecturer: Impact Cratering, Fundamentals of Planetary Geoscience (3 cr), Arizona State University, ~15 undergraduate and graduate students, Fall 2002.

Guest Lecturer: Moon and Asteroids, Fundamentals of Planetary Geoscience (3 cr), Arizona State University, ~15 undergraduate and graduate students, Fall 2002.

Manuscripts in Preparation

Byrne, P.K., R.M.C. Lopes, J. radebaugh, and **D.A. Williams**, 2023. An extensionally fractured upper lithosphere on Io. *Geology*, in prep.

Bleacher, J.E., **D.A. Williams**, P.M. Mouginis-Mark, S. Musiol, P.K. Byrne, D. Shean, G. Neukum, R. Greeley, K.L. Tanaka, Geologic Map of Olympus Mons, Mars, *U.S. Geol. Surv. Sp. Inv. Map*, 1:1,000,000, in preparation.

Garry, W.B., **D.A. Williams**, Geomorphologic Map of Pavonis Mons, Mars, *U.S. Geol. Surv. Sp. Inv. Map*, 1:1,000,000, in prep.

Manuscripts in Review and Revision

White, O.L., K.N. Singer, **D.A. Williams**, J.M. Moore, and R.M.C. Lopes, 2023. Geologic map of Pluto. U.S. Geol. Surv. Sp. Inv. Map (SIM) ####, 1.7,000,000, in review.

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Williams, D.A., J. Radebaugh, R.M.C. Lopes, I. de Pater, N.M. Schneider, F. Marchis, J. Moses, A.G. Davies, J. Perry, J.S. Kargel, L.P. Keszthelyi, C. Paranicus, A.S. McEwen, K.L. Jessup, D. Goldstein, M. Bunte, J. Rathbun, M. McGrath, K. Khurana, S. Rodriguez, T.A. Hurford , A.R. Hendrix, M. Kirchoff, E. Turtle, 2009, Future Io Exploration for 2013-2013 and Beyond, Part 2: Recommendations for Missions, A white paper submitted for the 2011 NRC Planetary Decadal Survey, 7 pp., http://www8.nationalacademies.org/ssbsurvey/publicview.aspx

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McKinnon, W.B., and >25 coauthors including **D.A. Williams**, 2009, Exploration Strategy for the Outer Planets 2013-2022: Goals and Priorities, A white paper submitted for the 2011 NRC Planetary Decadal Survey, 7 pp., http://www8.nationalacademies.org/ssbsurvey/publicview.aspx

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