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updated July 2024

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2003 - 2009 PhD, Geosciences and Astrobiology, Geosciences, Pennsylvania State University Dissertation (link): "Soil Formation and Terrestrial Biosignatures in the Middle Cambrian" Advisors: Drs. Lee Kump and Tim White

1999 - 2003 BA, Earth and Planetary Sciences, Earth & Planetary Sciences, Johns Hopkins University

Thesis: "Heterogeneous Chemistry and Titan's Aerosols"

Advisor: Dr. Darrell Strobel

## Professional Experience

2019 - Now Founder, Science Voices (US)

- Co-developing Greenworks global environmental stewardship projects network
- Developing Agavi adaptive learning platform for digital teaching in offgrid regions
- Developing Sustainable States platform for environmental diplomacy role-playing games

2024 Visiting Professor, Institute of Geoscience, University of Campinas (BR)

- Teaching project design for community extension activities
- Departmental lectures on community extension, digital learning, role-playing games

2022 Fulbright Scholar, Visiting Faculty, Institute of Geoscience, University of Campinas (BR)

- Teaching astrobiology, environmental policy and diplomacy, fieldwork
- Developing concepts for off-grid digital classrooms in rain forest communities

2020 - 2021 Visiting Assistant Professor, Dept. of Chem. and Phys. Sciences, Univ. of the Virgin Isl. (US)

- Redeveloping online physics labs, teaching
- Developing public outreach resources and connections (Etelman Observatory)
- Liaison for Engineering 4 Us All (E4USA) program

2020 Fulbright Scholar, Visiting Faculty, Fac. of Fisheries and Marine Science, Khairun Univ. (ID)

- Teaching marine geology, developing new low-bandwidth lab concepts
- Faculty development for Indonesian colleagues

Residential Faculty, Phys. Sciences and Engr., Chandler-Gilbert Community College (US) 2019

- Teaching introductory astronomy lectures and labs
- Redeveloping astronomy labs

2011 - 2018 Instructional Designer Sr., Cntr. for Education Through eXploration, Arizona State Univ. (US)

- Led development and research of Habitable Worlds online science lab course
- Co-developed Earth/political science Build a Nation course, hybrid and online versions
- Coordinated international teams for development of astrobiology digital simulators
- Developed grants and collaborations for place-based online geology experiences

# Grants, Fellowships, and Awards

2022 XPRIZE Foundation - Racial Equity Alliance Ideas Competition Award: "High-Tech Low-Tech Teaching and Learning" at Science Voices, Gilbert, Arizona, USA

- Office of Astronomy for Development Grant: "Beyond the Beach: Foundations for Caribbean Astrotourism" at Etelman Observatory, Charlotte Amalie, St. Thomas, US Virgin Islands, USA
- Fulbright Fellowship: "Deep and Widespread Transformation in Digital Interdisciplinary Science Teaching" at Universidade Estadual de Campinas, Campinas, Brazil
- US Department of State, Global Ties US Citizen Diplomacy Action Fund Grant: "Greenworks: Artistically Beautifying Trashed Channels in Eastern Indonesia" at Khairun University, Ternate, Indonesia

• European Geosciences Union Higher Education Grant: "CubeSats for Earth Observation 2021 Experiences" at University of the Virgin Islands, Charlotte Amalie, St. Thomas, United States Virgin Islands, USA; Universidade Estadual de Campinas, Campinas, Brazil; Lviv Polytechnic, Lviv, Ukraine • NASA EPSCoR Seed Grant: "A Caribbean CubeSat Student and Research Pipeline" at University of the Virgin Islands, Charlotte Amalie, St. Thomas, United States Virgin Islands, USA 2020 • Fulbright Fellowship: "Enhancing Geoscience Education Through Digital Technologies" at Universitas Khairun, Ternate, Indonesia Peer-Reviewed Publications • Horodyskyj, L. B., Lennon, T., Greco, R. (submitted) "Sustainable States: A Role-Playing Game for Submitted Sustainability Education." Episodes 2021 • Mead, C., Anbar, A., Horodyskyi, L. B., Bratton, D. (2021) "Education Through Exploration: A Model for Using Adaptive Learning to Teach Laboratory Science Online." In Impey, C. and Wenger, M. (Eds.) Astronomy Education, Volume 2: Best Practices for Online Learning Environments. 2019 • Pardos, Z. A. and Horodyskyj, L. B. (2019) "Analysis of Student Behavior in Habitable Worlds Using Continuous Representation Visualization." Journal of Learning Analytics, 6(1): 1-15 (link) • Horodyskyj, L. B., Mead, C., Belinson, Z., Buxner, S., Semken, S., Anbar, A. D. (2018) "Habitable 2018 Worlds: Delivering on the Promises of Online Education." Astrobiology, 18(1): 86-99 (link) • Nawaz, S., Kennedy, G., Bailey, J., Mead, C., Horodyskyj, L. (2018) "Struggle Town? Developing profiles of student confusion in simulation-based learning environments." Proceedings ASCILITE2018, 224-233 (link) • Perera, V., Mead, C., Buxner, S., Horodyskyj, L. B., Semken, S., Lopatto, D., Anbar, A. (2017) 2017 "Students in fully online programs report more positive attitudes toward science than students in traditional, in-person programs." CBE-Life Sciences Education, CBE - Life Sciences Education, 16(4): ar60 (link) 2016 Domagal-Goldman, S. D., Wright, K. E., ..., Horodyskyj, L. B., ..., Wong, T. (2016) "The Astrobiology Primer v2.0." Astrobiology, 16(8): 561-653 (link) • Horodyskyj, L. B., White, T. S., Kump, L. R. (2012) "Substantial biologically mediated phosphorus 2012 depletion from the surface of a Middle Cambrian paleosol." Geology, 40(6): 503-506 (link) **Smart Courses** 2013 • Horodyskyj, L. B. and Anbar, A. D., Habitable Worlds (version 2.0). Editor: Anbar, A. D. Tempe, Arizona: ASU Online • Horodyskyj, L. B. and Anbar, A. D., Habitable Worlds (version 1.0). Editor: Anbar, A. D. Tempe, 2011 Arizona: ASU Online Licenses • Habitable Worlds License and Distribution Agreement (Arizona State University's Inspark Network) 2015 - Now **Affiliations** 2020 - Now Affiliate Research Scientist, Blue Marble Space Institute of Science (US)

Affiliate, Arizona State University (US)

2019 - Now

	Teaching Experience
2021 - Now	<ul> <li>Co-Instructor, Science Voices (Online, Multi-Country)</li> <li>Greenworks (Teacher Development): Indonesia, Iran, Ukraine (~20 teachers) – 1 offering (Late 2023)</li> <li>Sustainable States: Brazil-Ukraine (~40 students) – 1 offering (Late 2021)</li> <li>Greenworks (Project Design): Ukraine-Indonesia (~15 students) – 1 offering (Early 2021)</li> </ul>
2022 - 2024	<ul> <li>Visiting Professor, Universidade Estadual de Campinas (Campinas, Brazil)</li> <li>GF 137: Fundamentos e Princípios da Extensão [Fundamentals and Principles of Extension] (~60 students) - 2 offerings (Early 2024)</li> <li>GF 305: Práticas de Geociências na Educação Básica [Geoscience Practices for Basic Education] (~40 students) - 2 offerings (Late 2022, Late 2023)</li> <li>GN 304: Trabalho de Campo [Fieldwork] (~100 students) - 2 offerings (Late 2022)</li> <li>Extension: Intro Astrobiology (~25 students) - 1 offering (Mid 2022)</li> </ul>
2020 - 2021	<ul> <li>Visiting Assistant Professor, Univ. of the Virgin Islands (Charlotte Amalie, St. Thomas, USA)</li> <li>PHY 211: Introduction to Physics I and Lab (~35 students) – 1 offering (Late 2020)</li> <li>PHY 212: Introduction to Physics II and Lab (~35 students) – 1 offering (Early 2021)</li> <li>PHY 497: Senior Seminar (~7 students) – 2 offerings (Late 2020, Early 2021)</li> <li>NSC 104: Astronomy (~15 students) – 1 offering (Mid 2021)</li> </ul>
2020	Visiting Professor, Universitas Khairun (Ternate, North Maluku, Indonesia)  ■ Marine Geology (~50 students) – truncated due to COVID-19 (Early 2020)
2019	<ul> <li>Residential Faculty, Chandler-Gilbert Community College (Chandler, Arizona, USA)</li> <li>AST 111: Introduction to Solar System Astronomy (~50 students) – 2 offerings (Late 2019)</li> <li>AST 112: Introduction to Solar System Astronomy Lab (~75 students) – 3 offerings (Late 2019)</li> <li>AST 114: Introduction to Stars, Galaxies, and Cosmology Lab (~20 students) – 1 offering (Late 2019)</li> </ul>
2018 2012 - 2014	Faculty Associate, Arizona State University (Tempe, Arizona, USA)  • GLG/SES 106: Habitable Worlds (~2.000 students) – 4 offerings (Early 2012, Late 2013.

2012 - 2014

GLG/SES 106: Habitable Worlds (~2,000 students) – 4 offerings (Early 2012, Late 2013, Early 2014, Late 2018)

2010 Adjunct Faculty, Glendale Community College (Glendale, Arizona, USA)

Geology 110: Geologic Disasters and the Environment (~20 students) – 1 offering (Late

### Students Supervised

### 2021 - Now University of the Virgin Islands (Charlotte Amalie, St. Thomas, USA)

- Lena Young, PhD Program (2021 Now)
- Nikita Beck, Emerging Caribbean Scientists Program, Undergrad Research (2021 2023)
- Sheneka Patrick, Emerging Caribbean Scientists Program (2021)

#### 2021 - Now Blue Marble Space Institute of Science (Seattle, Washington, USA)

- Sebastián Valle, Young Scientist Program [online from Guatemala] (2024)
- Deivy Castellano, Young Scientist Program [online from Argentina] (2024)
- Giane Mayumi, Young Scientist Program [online from Brazil] (2023)
- Miguel Luiz Puga, Young Scientist Program [online from Brazil] (2023)
- Leonardo Macedo, Young Scientist Program [online from Brazil] (2023)
- Yuqing Yang, Young Scientist Program [online from China] (2023)
- Fiorella Ojeda, Young Scientist Program [online from Peru] (2022)
- Suzana Varjão, Young Scientist Program [online from Brazil] (2022)
- Daniel Orta, Young Scientist Program [online from USA] (2021)
- David Orta, Young Scientist Program [online from USA] (2021)
- Shahkar Hassan, Young Scientist Program [online from Pakistan] (2021)

	Outreach and Service Experience
2024	Guest, João Alves dos Santos Public School (Campinas, Brazil)  ■ Developed activities on astrobiology for grade school children
2020	Co-organizer, Ak-Chin Indian Community Library Mars Family Night (Maricopa, Arizona)  • Co-developed and ran programming with library staff
2013 - 2019	<ul> <li>Panelist and Exhibitor, Phoenix Fan Fusion (formerly Phoenix Comicon) (Phoenix, Arizona)</li> <li>Organized and participated in 2-3 panels each year on topics from science to gaming to public policy</li> <li>Organized and displayed ASU educational project exhibits</li> </ul>
2014 - 2018	<ul> <li>Exhibitor, ASU School of Earth and Space Exploration (Tempe, Arizona, USA)</li> <li>Organized and displayed ASU ETX educational projects, astrobiology activities during various public outreach events</li> </ul>
2014 - 2015	Science Programming Coordinator, Phoenix Comicon (Phoenix, Arizona, USA)  Science programming for pop culture event that regularly attracts 75,000+ attendees  Recruited 100+ local and regional scientists and science outreach enthusiasts  Organized and scheduled 24+ hours of panels and exhibits each year  Networked with local science and technology organizations and companies
2013, 2016, 2019	<b>Grand Awards Judge</b> , <i>Intel International Science and Engineering Fair</i> (Phoenix, Arizona)
2012, 2016	Special Awards Judge, Arizona Science and Engineering Fair (Phoenix, Arizona, USA)

	International Experience
Fieldwork	Western Australia (2011, 2013 - Shark Bay, Karijini National Park)
Conferences and Workshops	International Astrobiology Education (2013 - Höör, Sweden), Sustainability Workshop (2017 - Jakarta, Indonesia), Earth-Life Science Institute Winter School (2018 - Tokyo, Japan), International Geoscience Education (2018 - Campinas, Brazil), 21st Century Geoscience Education Workshop (2020 - Lviv, Ukraine), International Geoscience Education (2022 - Matsue, Japan)
Ed-Tech Collaborations	Smart Sparrow (2011-2013 - Sydney, Australia)
Independent Travel	Europe (Spain, UK, France, Monaco, Italy, Switzerland, Liechtenstein, Austria, Germany, Denmark, Sweden, Poland, Czech Republic, Slovakia, Hungary, Ukraine, Romanian, Bulgaria, Greece); Asia (Turkey, Uzbekistan, Nepal, India, South Korea, Japan, Indonesia); Africa (Tunisia); Oceania (Australia); South America (Brazil, Colombia, Peru)

	Technical Skills
Discussion Platforms	Piazza (Expert)
Learning Management	Canvas (Moderate), Blackboard (Moderate), Moodle (Moderate)
Content Management	Wordpress (Advanced)
Media Software	Affinity Designer (Expert), Adobe Creative Suite (Expert)
Web Languages	HTML (Expert), PHP (Expert), JavaScript (Expert)
Computer Languages	Python (Moderate), Java (Moderate), Fortran 90 (Moderate)
Databases	MySQL (Expert)
Languages	Fluent: English, Ukrainian Conversational: Brazilian Portuguese, Indonesian

	Research Skills
Field Work	Outcrop measuring, description, sampling
Sample Prepa	Rock saw, ball mill grinding, acid digestions (HCl, HF), lithium metaborate fusions for oxide analysis, clean techniques for low carbon samples
Instrumentati	ion Elemental analyzer (CE Instruments NA 2500) use and maintenance, x-ray diffraction (Rigaku microdiffractometer); x-ray mapping (Horiba XGT-5000)
Pedagogy	Study design, data analysis
	Memberships
2018 - Now	European Geosciences Union
2017 - Now	American Indian/Alaskan Native Working Group (NASA Science Mission Directorate)
2009 - Now	National Association of Geoscience Teachers
2008 - Now	American Geophysical Union
2006 - Now	Geological Society of America
	Professional Development
2021 - 2022	Ashoka Changemakers Everywhere Academy (Online)
2018	Earth-Life Science Institute Origins Network Winter School (Tokyo Institute of Technology)
2017	Urban Heat Resilience Storytelling Workshop (Asian Cities Climate Change Resilience Network, Mercy Corps Indonesia, Thomson Reuters Foundation)
2017	Engaging Alaska Youth in STEM and Community Resilience Workshop (University of Alaska, Fairbanks/NOAA)
2010	Sagan Exoplanet Summer Workshop (CalTech)
2008	NASA Planetary Science Summer School, Session 2 (CalTech/Jet Propulsion Lab)
	Panel and Journal Reviews
2022 - Now	American Indonesian Exchange Foundation - Fulbright (AMINEF - Indonesia)
2021 - Now	National Science Foundation (NSF - USA)
2021 - Now	National Aeronautics and Space Administration (NASA - USA)
2018 - Now	Journal of Geoscience Education, Integrative and Comparative Biology, GSA Bulletin, Journal of Visualized Experiments
	Invited Colloquia and Public Talks
2021	<ul> <li>"Surface Alteration: An Astrobiology Perspective." 2nd International Conference on Quaternary Sciences, Gorgan University, Iran - Online (September)</li> </ul>
	<ul> <li>"Gamification and Role Playing Simulations for Science Learning." MBG Turkiye Astrobiology Group, Turkey - Online (April)</li> </ul>
2020	• "Climate Change: Science and Economics." Universitas Khairun, Ternate, Indonesia - Online (July)
	<ul> <li>"Seabed Resources: Opportunities and Impacts." Universitas Khairun, Ternate, Indonesia - Online (July)</li> </ul>
	<ul> <li>"Effective Storytelling to Drive Student Learning in Science Classes." Universitas Khairun, Ternate, Indonesia (February)</li> </ul>

- "Marine Protection Areas in the United States." Universitas Khairun, Ternate, Indonesia (February)
- "Alternative Ed: Rethinking Science Education for the Anthropocene." University of the Virgin Islands, US Virgin Islands (July)
- "Alternative Ed: Rethinking Science Education for the Anthropocene." Oakland University, MI (November)
  - "Alternative Ed: Rethinking Science Education for the Anthropocene." Southern Illinois University, Carbondale, IL (November)
  - "Using Big Questions, Technology, and Comedy to Drive Student Learning." Serious Play Conference, Manassas, VA (July)
  - "Alternative Ed: Rethinking Science Education for the 21<sup>st</sup> Century." Colgate University, Hamilton, NY (February)

### Workshops

- "Teaching Real Science in Physical and Digital Classrooms." Earth Educators' Rendezvous, Online (July)
- "Professional Development for College Instructors." Ternate, Indonesia (February March)
  - "Plugging in to 21st Century Geoscience Education: Rethinking Science Education for the Anthropocene." Lviv, Ukraine (January)
- "Active Learning and Digital Geoscience Education." Fall Meeting of the Geological Society of America, Indianapolis, IN (November)
  - "Plugging in to 21<sup>st</sup> Century Geoscience Education." VIII GeoSciEd, Campinas, Brazil (July)

### Conferences

- Horodyskyj, L. B., Greco, R., Lennon, T. "Sustainable States: Usando Jogo de Role-Playing na Educação Ambiental [Sustainable States: Using Role-Playing Games in Environmental Education]."
   IX Seminario Internacional de Enseñanza en las Ciencias Naturales, Neiva, Colombia (November)
  - Greco, R., Jama, A. M., Soares, C. J. A., Horodyskyj, L. B. "A Abordagem Ecocêntrica para o Ensino das Ciências da Terra [The Ecocentric Approach to Teaching Earth Sciences]." IX Seminario Internacional de Enseñanza en las Ciencias Naturales, Neiva, Colombia (August)
- Horodyskyj, L. B., Ilca, B., Parkhurst, W., Gazdac, A., Oribello, J. "Agavi: A Digital-Analog Hybrid Platform for Science Education." IX GeoSciEd, Shimane, Japan (August)
  - Greco, R., Horodyskyj, L. B. "Could Earth Science Education Contribute to a Culture of Peace?" IX GeoSciEd, Shimane, Japan (August)
  - Lennon, T., Horodyskyj, L. B., Greco, R., Ishak, L., Umasangaji, H., Buniak, I. "Greenworks: A
     Multi-University Environmental Education Role-Playing and Community Action Experience." IX
     GeoSciEd, Shimane, Japan (August)
  - Horodyskyj, L. B. "International Diplomacy Games for Environmental Learning." Serious Play Conferences, Online (June)
- Horodyskyj, L. B. "Using the Limits of COVID Digital Learning to Engage Students in Scientific Thinking." Earth Educators' Rendezvous, Online (July)
  - Horodyskyj, L. B. and Lennon, T. "Global School Partnerships Through Role-Playing Games."
     Serious Play Conferences, Online (June)
  - Horodyskyj, L. B., Umasangaji, H., Ishak, L., Greco, R., Lennon, T. "Greenworks: Science, Role-Playing, and Community Transformation." European Geosciences Union General Assembly, Online (April)

- Horodyskyj, L. B. "Using the Limits of COVID Digital Learning to Engage Students in Scientific Thinking." Waasamoogikinwaa'amaading Tribal College Conference, Online (April)
- Horodyskyj, L. B. and Mead, C. "An Improved Method for Teaching the Scientific Process."
   Astrofisica Centro Americana y del Caribe Annual Meeting, Online (December).
  - Horodyskyj, L. B. and Mead, C. "An Improved Method for Teaching the Scientific Process." Astronomical Society of the Pacific Annual Meeting, Online (December).
  - Lennon, T. and Horodyskyj, L. B. "Assessment of Collaborative Skills in a Climate Ambassadors Program." 46th Annual Conference of the Association of Moral Education, Online (October)
  - Horodyskyj, L. B., Umanahu, E., Lennon, T. "Green Ambassadors: Science, Role-Play, and Community Transformation." Fall Meeting of the Geological Society of America, Online (October)
  - Horodyskyj, L. B., Umasangaji, H. "A World Apart: Implementing Active Learning in an Indonesian Geoscience Classroom Pre- and Post-COVID-19." Fall Meeting of the Geological Society of America, Online (October)
- Horodyskyj, L. B., Mead, C., Oliver, C., Anbar, A. D. "Teaching Real Science: A Novel Approach to Teaching Students the Scientific Process." Fall Meeting of the Geological Society of America, Phoenix, AZ (September)
  - Horodyskyj, L. B., Mead, C., Oliver, C., Anbar, A. D. "Teaching Real Science: A Novel Approach to Teaching Students the Scientific Process." Astrobiology Science Conference, Seattle, WA (June)
  - Horodyskyj, L. B., Mead, C., Oliver, C., Anbar, A. D. "Teaching Real Science: A Novel Approach to Engaging Students in the Scientific Process." *European Geosciences Union General Assembly*, Vienna, Austria (April)
  - Horodyskyj, L. B., Bruce, G., Semken, S., Anbar, A. D., Hosman, L. "Online Geoscience Offline."
     Fall Meeting of the American Geophysical Union, Washington, DC (December)
  - Horodyskyj, L. B., Mead, C., Pardos, Z., Anbar, A. D. "Improving Student Outcomes Through Informed Use of Learning Analytics." Fall Meeting of the American Geophysical Union, Washington, DC (December)
  - Horodyskyj, L. B., Bruce, G., Bratton III, D., Mead, C., Ruberto, T., Semken, S., Anbar, A. D.
     "Education Through Exploration: Lessons from Digital Active Learning at Scale." Fall Meeting of the Geological Society of America, Indianapolis, IN (November).
  - Horodyskyj, L. B., Mead, C., Lennon, T. "Build a Catastrophe: Using Digital World and Policy Models to Engage Political Science Students with Climate Change." Fall Meeting of the Geological Society of America, Indianapolis, IN (November).
  - Horodyskyj, L. B., Lennon, T., Mead, C., Anbar, A. "Build a Catastrophe: Using Digital World and Policy Models to Engage Political Science Students with Climate Change." Fall Meeting of the American Geophysical Union, New Orleans, LA (December).
  - Horodyskyj, L. B., Mead, C., Anbar, A. D. "Finding Actionable Data to Support Student Success in Introductory Science Courses." Fall Meeting of the American Geophysical Union, New Orleans, LA (December). invited
  - Perry, A., Seyffer, L., Horodyskyj, L. B., Hosman, L., McAllister, L. "Challenges and Opportunities for Delivering and Using Open Access Materials in Developing Countries." *Open Education 2017*, Anaheim, CA (October).
  - Horodyskyj, L. B., Bruce, G., McAllister, L., Semken, S., Anbar, A., Hosman, L. "Online Geoscience Offline." Goldschmidt, Paris, France (August).
  - Horodyskyj, L. B., Mead, C., Anbar, A. D. "I Assumed You Knew: Teaching Assumptions as Co-Equal to Observations in Scientific Work." Astrobiology Science Conference, Mesa, AZ (April).

2018

2017

	Media Coverage
2021	<ul> <li>AAAS Blogs (2021, October 15), "How Making Labs Accessible and Relatable Increases Student Engagement"     (https://www.aaas-iuse.org/resource/how-making-labs-accessible-and-relatable-increases-studen t-engagement/)</li> </ul>
2017	<ul> <li>The Chronicle of Higher Education (2017, October 22), "Designing an Online Science Course With Video-Game Appeal" (https://www.chronicle.com/article/Ariel-Anbar-Designs-Online/241480)</li> </ul>
2015	<ul> <li>Scientific American (2015, January 21), "Astrobiologist Aims to Make Science Education More Interactive" (https://blogs.scientificamerican.com/observations/astrobiologist-aims-to-make-science-education-more-interactive/)</li> </ul>
2013	<ul> <li>e-Literate (2013, March 3), "The OpenClass Vision: An Example" (https://mfeldstein.com/the-openclass-vision-an-example/)</li> </ul>