

ANA MENDOZA MAYA, MS

Collection Assistant - Earth Sciences, Denver Museum of Nature and Science
amendozamaya@dmns.org

EDUCATION

Master of Arts (Ecology and Evolutionary Biology)

Biodiversity Institute, University of Kansas

Thesis advisor: Dr. Bruce Lieberman

Thesis topic: Geometric Morphometrics in Middle Cambrian trilobites

Master of Science (Evolutionary Biology)

Instituto de Geología, Universidad Nacional Autónoma de México (UNAM)

Thesis advisor: Dr. Josep Moreno Bedmar

Thesis topic: Taxonomy of the ammonites of the family Olcostephanidae from the Upper Berriasian and Valanginian of Mexico

Bachelor of Sciences (Biology)

Facultad de Ciencias, UNAM

Thesis advisor: Dr. José Campillo Balderas

Thesis topic: Evolution of jelly roll domain in icosahedral capsid proteins from RNA virus

CURATORIAL/COLLECTIONS EXPERIENCE

Earth Sciences Division, Denver Museum of Nature and Science (DMNS) - Collection Assistant

- Support the development of the Gems & Mineral exhibit and management of the Inver Paleo Collection.

Invertebrate Paleontology Collection, DMNS - Paid Internship

- Cataloged thousands of Paleozoic-Cenozoic invertebrate specimens, as well as some plants and vertebrates. Re-housed specimens using archival materials, ensuring preservation in perpetuity.
- Managed locality data uploads into KE EMu, including geo-referencing.
- Assisted with inventory and reorganization of the Cretaceous invertebrate collections (~1,600 localities).
- Oversaw deaccessions, handled donations, and implemented pest control measures.
- Supported object photography, measurement, and handling for the Gems & Minerals exhibition.
- Developed and delivered outreach activities on invertebrate fossils for Museum visitors.
- Supervised interns from Prep Lab while they learned the cataloging process of the Paleobotany collection.
- Conducted fieldwork at the Cretaceous-Paleogene boundary in North Dakota.

Invertebrate Paleontology Collection, Biodiversity Institute, University of Kansas (KU) -

Paid Curatorial Assistantship

- Identified, photographed (using Helicon Software), and cataloged hundreds of Paleozoic invertebrates, including trilobites, brachiopods, bryozoans, ammonites, and crinoids.
 - Packed and secured ~30,000 specimens for the type collection relocation across campus; collaborated with the Collection Manager to create workflows for the move.
 - Supervised undergraduate and Museum Studies students involved in collection relocation projects.
 - Managed database entries using Specify.
 - Participated in outreach initiatives for the Invertebrate Paleontology Collection, including activities for K-12 students and collection tours.
-

RESEARCH EXPERIENCE

Invertebrate Paleontology, Ecology and Evolutionary Biology, Biodiversity Institute, KU

Masters thesis

- Identified and photographed ~300 Middle Cambrian trilobites of several species. Conducted landmark-based and multivariate analyses (GPA, PCA, discriminant analysis, K-means) using the 'Geomorph' and 'StereoMorph' R packages to study shape variation and disparity in trilobites.
- Served on the Panorama Grant Committee, reviewing graduate grant proposals.

Laboratorio de Invertebrados, Instituto de Geología, UNAM

Masters thesis

- Developed a comprehensive corpus of the Olcostephanidae family, providing updated descriptions of 61 species and 7 genera of Mexican ammonites, along with 3D models and photographs of type specimens.
- Conducted fieldwork in the Mexican Cretaceous.

Invertebrate Paleontology, Biodiversity Institute, KU

- Identified Burgess Shale-type fossils and utilized SEM EDS microscopy to create elemental maps to study their taphonomic aspects.

Laboratorio de Invertebrados, Instituto de Geología, UNAM

- Prepared Upper Cretaceous paleontological samples using an air scribe. Studied ammonite taxonomy and biostratigraphy, created biostratigraphic and taxonomic illustrations for publications, and authored a scientific paper on Cretaceous ammonite biostratigraphy in Mexico.

Laboratorio de Origen de la vida, Facultad de Ciencias, UNAM

Bachelor's thesis

- Created, organized, and analyzed a database of RNA virus capsid domains. Produced scientific figures of 3D protein structures using PyMOL, Chimera, and other multiple databases. Generated structural alignments with DALI to trace the origin of the *jelly roll* domain in viral proteins.

Laboratorio de Comportamiento Animal, Instituto de Ecología, UNAM

- Evaluated long-term effects of early immune challenges in the marine bird *Sula nebouxii* (blue-footed booby); managed a long-term study database in Microsoft Access; and compared GLMMs in RStudio.

PUBLICATIONS

Mendoza Maya, A.K., López Carranza, N., Lieberman, B., (*in preparation for submission to PeerJ*). Shape Variation and Disparity in Middle Cambrian Trilobites from Utah.

Mendoza Maya, A. K., Moreno-Bedmar, J. A., & Chávez-Cabello, G., (2017). Ammonites del Aptiano superior de la Formación La Peña de la sección de Los Chorros, Coahuila, noreste de México. *Paleontología Mexicana*, 6(1), 43–49. <http://www.ojs-igl.unam.mx/index.php/Paleontologia/article/view/574/459>

TEACHING EXPERIENCE

Principles of Organismal Biology (BIOL 152), Ecology and Evolutionary Biology Department, KU

- Proctored exams, assisted with quizzes, and graded for ~300 undergraduates. Developed rubrics and example answers. Managed student inquiries and communications. Collaborated with Dr. Leo Smith (2023) and Dr. Jenny Archibald (2023, 2024).

Introduction to Geology, Independent Tutor (Preply)

- Planned, designed, and delivered online sessions with practical exercises at a high school level, including PowerPoint presentations and content with a special focus on the geology of Spain

ACADEMIC AND PROFESSIONAL AWARDS

- Martha Mitchell Pearson Scholarship (University of Kansas) \$5,000
- Beca Nacional para Estudios de Posgrado, CONACYT \$190,000 MXN
- Training in Research Methods, fellowship from Secretaría de Educación Pública (SEP) and Fundación UNAM \$65,000 MXN
- CONACYT fellowship for National research assistants \$168,000 MXN
- Beca de Titulación, Dirección General de Orientación y Atención Educativa (DGOAE), UNAM
- Scholarship MANUTENCIÓN-UNAM, Programa Nacional de Becas de Educación Superior \$20,000 MXN

PARTICIPATION IN CONFERENCES/FORUMS/COURSES/ACADEMIC EVENTS

- GSA Connects 2022, Geological Society of America Annual Meeting, Denver, Colorado
- International Courses “Bioinformatic skills”, Genomics Science Center, UNAM (full scholarship)
- 2nd Symposium on Molecular Aspects of Virology, Mexico City
- XX International Course Biological Basis of the Behavior, CITLAX, Tlaxcala, Mexico (full scholarship)
- Meeting on the Major Transitions in Evolution, Instituto de Biotecnología, and the Centro de Ciencias Genómicas, UNAM

ADDITIONAL SKILLS

- **Software:** Specify, KE EMu, Helicon Software, RStudio, ‘geomorph’ & ‘StereoMorph’ R packages, Adobe Photoshop, CorelDraw, Canva, Procreate, Microsoft suite, DALI Protein Structure Comparison Server, Chimera.
- **Curatorial/paleontology:** taxonomy, fossil preparation, fieldwork, biostratigraphic correlation, rock cutting, photography, rehousing, inventory, foam-homes.
- **Relevant courses:** Natural Sciences Curation and Collections Management, Biometry, Multivariate Data Analysis, Systematics and Macroevolution, General Invertebrate Zoology, Evolutionary Biology.
- **Languages:** English (fluent), Spanish (native), German (novice), Russian (novice).