

MARIANA MACIAS

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EDUCATION

University of Pennsylvania — Philadelphia, PA

May 2026

Bachelor of Arts in Neuroscience; Minors in Chemistry, Neuroscience & Health Care Management, and Legal Studies & History

- **Relevant coursework:** US Payer and Provider Strategy; Health Care Management; Comparative Health Systems; Operations & Decision-Making; Public Policy; Medical Ethics; Biochemistry; Statistics; Computer Programming.

LEADERSHIP & COMMUNITY EXPERIENCE

The Janie Foundation — New York, NY / Philadelphia, PA

Jan 2026 – Present

Director of Community Outreach

- Lead community outreach for a volunteer-run women's support initiative, conducting discovery with prospective partners and developing proposals around their service needs.
- Built an AI-assisted research and planning site mapping 15 community needs and 48 organizations; developed three pilot proposals with draft budgets, volunteer requirements, partner responsibilities, and evaluation criteria.
- Met with Sanctuary for Families to understand food-support needs and contacted HelloFresh to explore donation and distribution options for women and families rebuilding after abuse.
- Developed Columbia chapter-leader recruitment materials, defining the founding president's responsibilities, application prompt, and weekly leadership commitments.

Penn Lung Cancer Screening Initiative (PLCSI) — Philadelphia, PA

Apr 2025 – May 2026

Finance & Health Education Chair

- Relaunched a dormant low-dose CT lung cancer screening program end to end after it collapsed under its founding team: drafted the constitution, won university recognition, and funded operations through grant writing and institutional support.
- Built referral partnerships with Penn Medicine, Penn Presbyterian, and Fox Chase Cancer Center, creating a centralized pipeline into screening that reached 500+ community members.
- Translated USPSTF screening criteria (age, pack-year history, quit date) into a volunteer eligibility-assessment protocol, wrote the training documentation, and coached volunteers to apply it at community health center tabling events, including walking participants through payment options and insurance registration.
- Analyzed screening uptake across Philadelphia and found the highest-incidence neighborhoods had the lowest uptake — transportation, insurance confusion, clinic capacity, medical mistrust — and that the standard pack-year threshold under-captures Black patients, who develop lung cancer at lower exposure; redirected outreach toward the neighborhoods those criteria miss.
- Owned the operating budget as Finance Chair: prepared and submitted funding requests through the university's student-activities process, tracked spend against approved budgets, and processed member reimbursements.
- Treated recruiting as audience segmentation, framing the same opportunity for pre-med, business, and research pools across ten department listserv campaigns; sourced, screened, and onboarded 200+ applicants into a ~50-person team in under a month, then documented the operating structure and ran team operations.

RESEARCH EXPERIENCE

Shorter Laboratory, Penn Medicine — Philadelphia, PA

Aug 2025 – May 2026

Undergraduate Researcher

- Tested 48 candidate RNAs from a >1,000,000-sequence screen in a TDP-43 toxicity model — the protein whose aggregation drives ALS and frontotemporal dementia — of which 38 suppressed toxicity and 29 outperformed the positive control.
- Engineered the lab's HEK293 human-cell aggregation assay from scratch when existing tools could not resolve what the project required, then validated the leading candidates in vitro using fluorescence microscopy.
- Authored an independent two-semester research manuscript: performed all experiments, co-analyzed the data, and wrote the paper.

Abdulmalik Laboratory, Children's Hospital of Philadelphia — Philadelphia, PA

Jan 2024 – May 2026

Research Assistant

- Evaluated small-molecule anti-sickling compounds for sickle cell disease using sickling and oxygen-affinity assays, including an independent project testing 69 novel compounds; optimized the BOBS oxygen-binding system for whole blood.
- Generated the comparative data used to prioritize lead compounds across collaborating institutions (CHOP, Virginia Commonwealth University, King Abdulaziz University) and a biopharma partner.

PUBLICATIONS & PRESENTATIONS

- Mohammad KA, Naghi AH, Ghatge MS, Balogun B, **Macias M**, et al. "Michael Acceptor Compounds as Hemoglobin Oxygen Affinity Modulators for Reversing Sickling of Red Blood Cells." *Pharmaceuticals*. 2025;18(6):783.
- Omar AM, et al. (incl. **Macias M**). "Potent Antisickling Furaldehyde Analogs for Acute Sickle Cell Therapy: Enhanced Efficacy and Intravenous Formulation Potential." *ChemMedChem*. 2025;20:e202500507.
- Abstract, 67th Annual Meeting of the American Society of Hematology (ASH), 2025.

SELECTED PROJECTS

Independent Healthcare Company Research — Self-directed, New York, NY **Jun 2026 – Present**

- Built public-data strategy research on venture-backed healthcare and insurance companies — market structure, regulation, business model, expansion theses — and published several as interactive research sites, taking each from research through build and deployment as a non-engineer using AI and low-code tools (Claude Code, Vercel).
- Resolved a discrepancy between a state insurance register and a company's own filings by writing to the regulator and obtaining the answer in writing.
- Assembled a state insurance filing package against regulatory precedent; found the precedent set provided did not meet the regulator's "at least three comparable filings" standard and sourced three that did.

Healthcare Account Prioritization Framework — Individual case project **Jun 2026**

- Designed a weighted five-signal scoring framework in Excel to rank 100+ healthcare companies by likelihood of a specific operational bottleneck (one qualifying gate, four weighted triggers); built a gate, triage, verify, and sequence workflow and documented the rationale behind each weight so the ranking was defensible rather than arbitrary.

Investor Deep-Dive, Private Healthcare Markets — Penn Health Care Management **May 2026**

- Reconstructed the business model, funding history, and competitive moat of a private "food as medicine" company from public sources; isolated the investment crux — whether it could win between reimbursed benefit delivery and outcomes-based population health — and distilled it into a five-minute investor talk track covering traction, model, risks, and timing.

Medicare Advantage Star Ratings Analysis — Penn Health Care Management **Apr 2026**

- Four-person paper on whether CMS's \$12.7B-a-year Star Ratings program improves care or rewards score-chasing; reframed it around how an insurer would game the weights (16% clinical outcomes vs. 58% experience and administrative), tested that against published evidence (552 contracts; the four-star payment cliff crossed 1.6 times on average), and argued for a sliding scale in place of the cliff.

IHI Case Competition — Institute for Healthcare Improvement, Emory Chapter **Mar 2026**

- Scoped an open-ended national IV-fluid shortage into a disaster-response system pairing AI-driven inventory forecasting, EHR-based clinical decision support, and drone-enabled redistribution; built a five-year rollout costing at \$5–7M across hospital administrators, EHR vendors, ASPR, FEMA, and the FAA, and reframed the recommendation for a CMO and an IT director under HIPAA constraints.

ADDITIONAL EXPERIENCE

Program Volunteer, Brain Exercise Initiative — Philadelphia, PA **Oct 2023 – May 2026**

- Led weekly one-on-one cognitive sessions with nursing-home residents with Alzheimer's and dementia, designing the arithmetic, recall, and reading exercise sets; built and taught a neuroscience curriculum for students at Northeast High School.

Delivery & Outreach Volunteer, Project Magnolia — Philadelphia, PA **Sep 2024 – May 2026**

- Coordinated event partners to source donated flowers and ran recurring deliveries to patients at Penn Presbyterian, HUP, and CHOP.

Weingarten Center, University of Pennsylvania — Philadelphia, PA **Jan 2024 – Dec 2024**

Test Proctor

- Delivered accommodated testing services as reader, scribe, and assistant across multiple courses and exam formats; assembled and formatted hundreds of pages of exam materials to deadline under strict confidentiality and student-privacy rules.

Diseño Desarrollo Médico — Mexico City, Mexico **Jun 2023 – Aug 2023**

Medical Technology Intern

- Supported clinical operations through administrative coordination and workflow organization; contributed to a research project on ischemic stroke interventions and observed interventional procedures including cardiac catheterizations and pacemaker implantation.

Physician Shadowing, AdventHealth Orlando — Orlando, FL **May 2023 – Jun 2023**

- Shadowed a multidisciplinary cardiology team and interpreted medical conversations for Spanish-speaking patients; invited by Dr. Zahid Amin to present at CSI America (January 2026).

SKILLS

Analysis & Tools: Excel and Google Sheets modeling (weighted scoring, forecasting, budget tracking); quantitative and qualitative research; company, investor, and market deep-dives; primary-source and regulator outreach; Word, PowerPoint, Google Workspace; ImageJ; AI and low-code tools (Claude Code, ChatGPT, Vercel).

Operations: Project management; workflow and protocol design; process documentation and playbooks; budgets, funding requests, and reimbursements; grant writing; recruiting, onboarding, and training; partnership and stakeholder management; cross-functional coordination.

Healthcare Domain: Health care management and comparative health systems; payer and provider strategy; clinical eligibility criteria and screening workflows; insurance and payer landscape; prior authorization and medication access; HIPAA; CMS quality programs; in vitro assay design.

Languages: Spanish (fluent, including medical interpreting); Dutch (conversational).