Shivas R. Amin, Ph.D.

Associate Professor of Biology (Tenured) · Department of Biology
Division of Science, Technology, Engineering and Mathematics
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EDUCATION

Ph.D., Biochemistry and Cell Biology — Rice University, Houston, TX 2010
B.S., Genetics — Texas A&M University, College Station, TX (Cum Laude) 2003

ACADEMIC APPOINTMENTS

Associate Professor of Biology (Tenured) — University of St. Thomas 2017–present
Assistant Professor of Biology (Tenure Track) — University of St. Thomas 2014–2017
Visiting Assistant Professor of Biology — University of St. Thomas 2012–2014
Adjunct Assistant Professor of Biology — University of St. Thomas 2011–2012
Adjunct Professor, Molec. & Human Genetics — Baylor College of Medicine 2012–2018
Postdoctoral Associate, Molec. & Human Genetics — Baylor College of Medicine 2010–2012

ADMINISTRATIVE & PROGRAM LEADERSHIP

Project Director, HSI-STEM / UST STARS Program — U.S. Dept. of Education grant 2017–2021
Built and led the UST STEM Success Center from the ground up. Oversaw professional staff, 35+ student workers, and a network of 25 STEM and 10 nursing faculty; established a peer-mentoring program (30+ mentors, 1,000+ visits/semester, 95% first-year retention), transfer-articulation agreements across Math, Biology, Chemistry, and Nursing, a Pre-Health coaching program, a STEM-focused ESL program, and six learning modules. Transitioned the Center to permanent staff after the grant closed.

STEM Research and Retention Manager — University of St. Thomas, School of Nursing (HSI-STEM) 2016–2017

HONORS & AWARDS

Excellence in Grant Management and Compliance — UST Office of Sponsored Research 2022
Professor Recognition Award — UST Student Senate 2021
Special Celt Care Award — for developing PPE during the COVID-19 pandemic 2020
St. Thomas Aquinas Award for Excellence in Teaching — University of St. Thomas 2018
Institutional Research and Academic Career Development Award (IRACDA) — BCM 2010–2012
Outstanding Biochemistry & Cell Biology Student Seminar — Rice University 2007
Excellence in Teaching, Molecular Biology & Genetics — Rice University 2006
NSF-IGERT Training Grant — Rice University 2006
Robert A. Welch Fellowship — Rice University 2004

GRANTS & SPONSORED RESEARCH

Funded

UST STARS Program (HSI-STEM). U.S. Department of Education (P031C160118). *Project Director*. $3.775M base award (2016–2021), plus a $109,000 supplemental award (sole author, 2020) to support computer-science students during COVID-19. Established the UST STEM Success Center.

STEM Center Support Grant. Hearst Foundation. $100,000 (2021–). Grant author/administrator. Support for STEM Center activities and personnel.

STEM Center Peer Mentoring Program. CenterPoint Energy Foundation. $100,000 over three years (2022–2025). Grant author/administrator.

UST–HCC STEM Articulation Grant. U.S. Department of Education (P031C110128). Research Cohort Leader (2014–2015).

NIH IRACDA (K12 GM84897). Baylor College of Medicine. Postdoctoral fellow (2010–2012).

NSF Integrative Graduate Education and Research Traineeship (IGERT). Rice University (PI: R. Raphael). Trainee (2006–2007).

Submitted / Under Review / Not Funded

PUENTES: Project Uniting Educators and New Technologies to Engage and Support. U.S. Department of Education. $2,965,329. *Program Evaluator* (H. Torres-Rimbau, Project Director). Not funded.

NIH IRACDA (resubmission). With BCM. Reviewed favorably at BCM; not advanced to federal review following elimination of the program.

R21 (NIH) — "Addressing Disparities in the Knowledge of Pathogenic Variation through Targeted Curation and Functional Testing." not federally reviewed due to program cutbacks.

PUBLICATIONS

Peer-Reviewed Scientific Journals

Amin, S. R., Erdin, S., Ward, M., Lua, R. C., & Lichtarge, O. (2013). Prediction and experimental validation of enzyme substrate specificity in protein structures. *PNAS, 110*(45).

Marciano, D. C., Lua, R. C., Katsonis, P., **Amin, S. R.**, Herman, C., & Lichtarge, O. (2014). Negative feedback in genetic circuits confers evolutionary resilience and capacitance. *Cell Reports, 7*(6).

Venner, E., Lisewski, A. M., Erdin, S., Ward, R. W., **Amin, S. R.**, & Lichtarge, O. (2010). Accurate protein structure annotation through competitive diffusion of enzymatic functions over a network of local evolutionary similarities. *PLoS One, 5*(12).

Amin, S. R., McCollum, C. W., Pauerstein, P., & Lane, M. E. (2007). A zebrafish lmo4 ortholog limits the size of the forebrain and eyes through negative regulation of six3b and rx3. *Developmental Biology, 309*, 373–385.

Crump, P., Rommel-Crump, R., Johnson, C., & **Amin, S.** (2017). *Hyla versicolor* (Gray Treefrog): Longevity. *Herpetological Review, 48*(3).

Peer-Reviewed Education Journals

Simmons-Nout, A., Larios-Sanz, M., **Amin, S. R.**, & Rosell, R. (2014). Using mini-reports to teach scientific writing to biology students. *The American Biology Teacher, 76*(8).

Conference Proceedings & Other Publications

Nam, E. A., Ribes-Zamora, A., Simmons-Nout, A. D., **Amin, S.**, Villares, G. J., Bagnall, R. A., Rosell, R. C., & Larios-Sanz, M. (2018). Comprehensive inclusion of an active and inquiry-based curriculum increases retention and persistence in biology. *EDULEARN18 Proceedings* (pp. 5457–5464). IATED Academy.

Ribes-Zamora, A., **Amin, S. R.**, Simmons-Nout, A., Larios-Sanz, M., & Rosell, R. (2013). Bringing research into laboratory courses. *EDULEARN13 Proceedings* (pp. 5913–5918).

Amin, S. R., & Johnson, C. (2013). The Houston Toad Research Collaborative: Using applied research techniques to encourage conservation awareness. *Amphibian Ark, 23*.

Manuscripts Under Review

Amin, S. "Drawing as a Companion Practice: Preserving Generative Learning in AI-Era Biology Education." Under review, *CBE—Life Sciences Education*.

PRESENTATIONS & INVITED TALKS

Invited & National

"Peer Mentoring Program Improves Academic Success through Proactive Partnerships" — Leadership in Higher Education Conference, Baltimore (with Miller & Mrugala) 2021

"A Customized ESL Plan for Introductory and Gateway College Students" — Leadership in Higher Education Conference, Baltimore (with Mrugala & Miller) 2021

"ACTOR Trainees Experience Diverse Undergraduate Learning Environments" — ASBMB Annual Conference (poster; with Beason-Abmayr et al.) 2020

"Success in College Science Courses Begins with Academic Language" — National STEM Education Center Conference (with Mrugala & Miller) 2020

"Engaging Generation Z in Urban Prairie Conservation" — North American Prairie Conference, University of Houston–Clear Lake 2019

"Comprehensive Inclusion of an Active and Inquiry-based Curriculum…" — EDULEARN18, Mallorca (paper) 2018

"Turbo-Charging Undergraduate Curriculum through Inquiry-Based Labs" — National IRACDA Conference, San Diego (with Larios-Sanz & Rosell) 2015

"Making Protein Structures Come to Life" — National IRACDA Conference, Philadelphia 2012

"Evolutionary Trace Annotation: Structure-based Protein Function Prediction" — National IRACDA Conference, Houston 2011

Regional

"Developing Grants to Aid the Community" — Del Norte City Council 2025

"Growing Participation in Prairie Conservation" — Native Prairie Society of Texas, Clear Lake Chapter 2020

"Urban Prairie Conservation" — Climate Change Symposium, Rothko Chapel 2019

"Opening Remarks" (Keynote/Plenary) — Ecology, Environmental Science & Conservation Career Forum (HCC/UST) 2019

"From Knowing to Acting" — HS & Adolescent Climate Change Forum, St. Catherine's Montessori (invited panelist) 2019

"Engaging Generation Z in Urban Conservation" — Houston Urban Conservation Summit, Coastal Prairie Partnership 2018

"Engaging College Students in Local Conservation" — Urban Prairie Managers Summit, Houston Zoo 2017

"Co-evolution of Man and the Internet (Is the Internet Alive?)" — TEDx USTHOUSTON 2015

"Transitioning to Teaching" — CNRC Postdoctoral Training Program, Children's Nutrition Research Center 2015

"From Nanoscopic Proteins to Macroscopic Ecosystems" — University of Dallas 2014

Local, Community & Guest Lectures

"The Evolution of Sociality and the Human Mind: Lessons on Leadership through the Study of Life" — UST Leadership Summit, Leadership Council 2025

"Marketing Yourself for a Teaching Job" — ACTOR Workshop Series, Baylor College of Medicine 2023

"Candid Conversations about Teaching" — Baylor College of Medicine 2021

"Metacognition: The Science of Learning" — Freshman Symposium, Houston 2020

"Using a Coaching Mindset to Support Students" — Freshman Symposium, Houston 2020

"Married to Science" — WISEcast (podcast) 2020

"COVID-19 and the Environment" — Center for Faith and Culture, Houston 2020

"Transitioning from Research to Teaching" — MD Anderson Postdoctoral Training Series 2019

"Teaching at a Minority Serving Institution" — Baylor College of Medicine Postdoctoral Series 2019

Mentored Student & Trainee Presentations (Amin as Supervisor/Research Mentor)

Mrugala, M., & Miller, A. — "College STEM Success Begins with High School ESL Classes," Texas TESOL Conference, San Antonio 2019

Mrugala, M., & Miller, A. — "Many Paths to Take: Teaching Students with Disabilities," ASU 50th MTESOL Conference, Tempe 2019

Mrugala, M., & Miller, A. — Continuing Education / Professional Development, Tomball ISD 2019

Mrugala, M., & Miller, A. — "College STEM Success Begins in High School English Class," Houston TexTESOL IV 2019

TEACHING EXPERIENCE

Courses Taught — University of St. Thomas

BIOL 4332 — Evolution (senior capstone) 2025–present

BIOL 3331 — Ecology 2018; 2023–present

BIOL 1351 — Introduction to Population Biology & Evolution 2011–present

BIOL 1151 — Introduction to Biology Practicum (coordinator) 2011–present

BIOL 3194 — Introduction to Biological Research 2016–present

BIOL 4194 — Guided Biological Research 2019–present

BIOL 4195 — Biology Senior Thesis 2018–present

BIOL 4193 — Special Topics: Molecular Visualization & 3D Printing 2021–present

BIOL 3163 / 3363 — Computational Biology Internship (I & II) 2018–2022

BIOL 3310 — Bioinformatics 2011–2018

BIOL 4333 — Research Methods in Biological Investigation 2012–2019

Earlier teaching (Rice University, 2007–2009): Fundamental Concepts in Biology; Freshman Seminar in Local Biology; Biochemistry & Cell Biology Graduate Seminar (mentor).

CURRICULUM DEVELOPMENT & TEACHING INNOVATION

- **Bioinformatics → Computational Biology degree reform** (2017–2019): led the redesign of the major — renamed the degree, replaced the capstone, created a two-course internship sequence (BIOL 3163 → 3363), and reclassified the Jr/Sr seminar as Bioscience Communication; first finalized cohort in 2019.
- **Undergraduate research course sequence** (BIOL 3194 / 4194 / 4195): developed the department's research-training sequence, including new-course creations
- **BIOL 4193 — Molecular Visualization & 3D Printing** (2021): created an elective teaching protein visualization and 3D-printing, later extended with Chimera-based structure analysis.
- **BIOL 3331 — Ecology** redesigned around a scaffolded grant-writing final project; student proposals externally reviewed by the Texas State Herpetologist.
- **BIOL 4332 — Evolution** (2025): developed a senior capstone involving the debate of kin- vs. group-level selection.
- **BIOL 1351 innovations:** "flipped" classroom with a full YouTube video library (2020–2021); STEAM drawing/illustration assignments (2023–) linked to improved outcomes.

- **BIOL 1151** developed into an online and later hybrid inquiry-based practicum during the pandemic.

RESEARCH & SCHOLARLY PROGRAMS

- **Urban pocket-prairie restoration & diversity** (2017–present): student-led restoration and ecological assessment of the Erin Novak Pocket Prairie (UST) and City of Houston sites; bioacoustic analysis of prairie systems (R/Python) in collaboration with the Texas State Herpetologist.
- **STEAM Lab** (2022–present): founded a program in which biology students apply STEM skills to art (3D printing, origami, digital art); institutional recognition includes a Doherty Library origami installation and 3D-printed donor ornaments.
- **NIH All of Us access for UST** (2024–present): secured institutional access and a collaborative arrangement with the BCM Human Genome Center to bring the human-genomics resource to undergraduates.
- **Postdoctoral teaching-training for HSIs / ACTOR** (2018–present): with BCM, developed workshop and observational experiences to prepare postdoctoral trainees for teaching careers.
- **STEM student retention & persistence** and grant-program evaluation as a scholarly line; standing interest in epigenetic switching in prokaryotes.

MENTORING & ADVISING

- **Academic advising** (2012–present): 27–64 undergraduate advisees per year (61 in 2025), with advising effort ranging from ~40 to ~130 hours annually.
- **Organizer, Biology Research Program** (2017–present): match students with research mentors and shepherd them through the three-course research sequence.
- **Liaison, MD Anderson PCCSM Summer Research Program** (2021–present): UST is an official MD Anderson partner; screen, rank, and nominate students, with guaranteed placements.
- **Facilitator, BCM–UST interactions** (2014–present): founded the BCM ACTOR teaching-training program (20+ participants; one alumnus now teaches at UST).

SERVICE

University

- **Founding member, Council for Inclusion and Diversity** (2020–2021) — originated the student-led Diversity Project.
- **Strategic Thinking Oversight Committee** (2017–2018) — institutional strategic plan; Enrollment working group.
- **International Education Committee,** Science representative (2015–2018).
- **Faculty Senator,** School of Arts & Sciences (2014–2016).
- **Search committees:** Biology open-rank faculty (2025–present); Computer Science (2016–2026).

Department

- **Organizer, Biology Education and Research Symposium (BEARS)** (2013–present): founded an annual symposium; grown from ~12 posters / 45 attendees to 25+ posters and 80–100+ attendees.
- **General Biology 1 Coordinator** (2013–2020): curriculum development, standardization across sections, and recruitment/training of 5+ adjuncts.
- **Advisor, Tri-Beta Biological Honor Society** (2023–present): largest honor society on campus; service programming includes CeltPals tutoring at Texas Children's Hospital, foster-care campus visits, Darwin Day, museum and prairie service events.
- **Core & program assessment** (2015–present): department Outcomes & Assessment report; Major Field Exam analysis.
- **Steward, Erin Novak Pocket Prairie** (2016–present) and the associated memorial scholarship.

Professional & Community

- **Rothko Chapel Climate Change Symposium** planning committee (2018–2019).
- **Guest speaker, St. Thomas High School** AP Biology (2015–2020); computational biology & genomics outreach with Dr. Pete Nordloh.
- **Foster Care campus visit** organizer (2025); Sample Class / Showcase Saturday presenter (2013–2018).

PROFESSIONAL DEVELOPMENT

Creating a Welcoming Classroom for All Students, Title V CORE grant team (2025) · NIH Regional Seminar on Funding & Grants Administration, Washington, DC (2018) · Científicos Latinx: Underserved Student Success in STEM (2018, 2019) · Academic Coaching & Cultural Diversity for Minority Students (2017, 2018) · HSI New Project Directors' Conference, U.S. Dept. of Education · Integrating Undergraduate Research into the Curriculum, CUR (2014) · Academic Assessment (2014) · Strategies for Writing Manuscripts and Grant Proposals, NIH/IRACDA (2012) · Ethics in Research, BCM (2012).