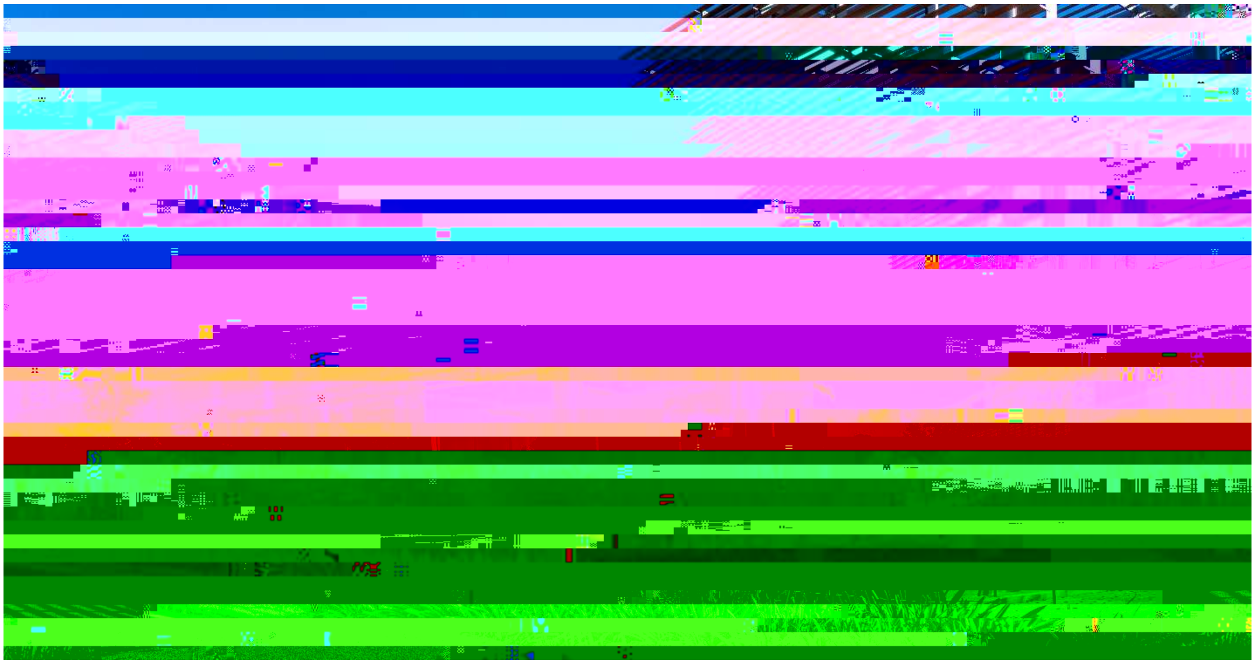
Research & Sponsored Programs Administration
Lamar University

Annual Report of Research Activities

Fiscal Year 2023
(September 1, 2022 – August 31, 2023)



Office of Research & Sponsored Programs Administration

January 31, 2024

The Office of Research and Sponsored Programs Administration (ORSPA) presents the annual report documenting the internal and external grant activities at Lamar University (LU) in Fiscal Year 2023 (FY23). The record documented in this report represents the research and grant efforts from September 1, 2022, to August 31, 2023. Research articles by LU faculty members published in refereed journals listed by major index systems in the calendar year 2023 are also reported.

In FY23, LU submitted ninety-four (94) external grant applications. The total requested funds were $24,152,482 with awarded funds of $7,370,661 for 49 applications. Table 1 compares external grant performance from FY19 to FY23. The received external funds in FY23 show a 23% growth compared to those of FY22. The number of submitted applications increased by 4% and the funded applications increased by 26%. As of January 15, 2024, there are 10 applications submitted in FY23 pending on funding decisions. The pending requests total $3,370,12.

Table 1: Comparison of External Grant Performance – FY19 to FY23

	FY19	FY20	FY21	FY22	FY23
No. of Submitted Proposals	62	90	105	90	94
No. of Awards	29	38	42	39	49
Awarded Revenue					

***: As of January 15, 2024, there are 10 FY 23 applications totaling $3,370,12 pending on funding decision.**

Figure 1 shows the amount of funds requested and received by the colleges and LU's administrative offices and research centers. The College of Engineering leads among the academic colleges in the amount of awarded funds ($2.6M), followed by the interdisciplinary research centers and administr] ʻ College of E

Figure 1. Amount of external funds (a) requested, and (b) received by college and LU administrative offices/centers in FY23. Chart (c) shows the number of funded awards.

The internal grant awards supported by the Center for Advances in Port Management (CAPM), the Center for Midstream Management & Science (CMMS), and the Center for

Table 2: Statistics of college/department efforts and received external grants in FY23

Table 4. Departmental research supported by LU centers and academic colleges in FY23

	No. of EPAFs Processed	Funded Amount
CAPM	2	$37,190
CMMS	2	$23,508
CoE	2	$41,194
CoAS	21	$84,778
CoB	13	$129,000
Total	40	$315,670

In FY23, the Office of Undergraduate Research (OUR) supported a total of 37 projects including 23 OUR awards and 14 Summer Undergraduate Research Fellowship (SURF) projects, with a funding level m from $1,000 (OUR g$1& n

Table 5: List of college/department external grant efforts and awarded funds in FY23

Dept	PI	Co-PIs	Project Title	Agency	Requested	Status
			College of Arts & Sciences			
Applied Arts & Sciences	Nordgren, Joseph		Joint Admission Medical Program (JAMP) GEER II	US Department of Education Pass through: Texas Higher Education Coordinating Board	$23,737	Yes $23,729
Biology	Hoch, Matthew		Fisheries Nursery Habitat Assessment of North Pleasure Island, USACE Dredge Placement Compartment #11.	S.A.L.T. Fisheries Research	$20,000	Yes
Biology	Kubicek, Kole		Assessing Historical and Contemporary Distributions of Freshwater Fishes in the Neches River Watershed with Emphasis on Long-Term Trends and Monitoring for Mussel Host Fishes	Texas A&M University	$16,161	Yes

Mathematics	Fowler, Jennifer	Felipe, L.; Marquez, A.; Vega Guzman, J.	Center for Community Coordination (CCC) in Engineering, Science, Technology, and Mathematics (ESTEMA)- a NSF HSI Community Coordination Center	National Science Foundation	$716,040	No
Mathematics	Fowler, Jennifer		Draft: Increasing Hispanic Representation in the STEM workforce through affordable, accelerated, professional certifications.	National [illegible]	[illegible]	No
Mathematics	Jensen-Vallin, Jacqueline		T.L.L. Temple Foundation Project	University of Texas - Austin	$5,000	Yes
Nursing	Long, Elizabeth	Knight, S.; Hale, R.; White, K.	A program to promote nursing faculty professional development and enhance retention	Texas Higher Education Coordinating Board	$185,647	Yes $186,220
Nursing	Long, Elizabeth	Calloway, K.	GEER II-Nursing Innovation Grant Program - Nursing Grant Pipeline	US Department of Education Pass through: THECB	$123,787	Yes
Nursing	Stinson, Cynthia		NSRP GEER II Funding, Clinical Space Up Ű " $ats	Texas Highe Education Coordinating Board%		

Construction Management	**Luo, Zhe**	**Liu, X.**	**Synthesis: Pavement Widening Best Practices**	**Texas Department of Transportation**	**$64,980**	**Pending**
Information Systems	**Nelson, Melinda**	**Touchet, J.**	**TIEC study abroad for College of Business**	**NSF National Science Foundation Pass Though: TERC**	**$6,000**	**Yes**

College of Education & Human Development

College of Education	**Spina, Robert**		**Educator Planning Grant**	**Texas Higher Education Coordinating Board**	**$10,000**	**Yes**
Educational Leadership	**Slaughter, Jody**		**AT&T Lamar University Grant**	**AT&T**	**$49,975**	**Yes $50,000**
Educational Leadership	**Slaughter, Jody**		**GEER II Funding**	**TSUS**	**$43,500**	**Yes**
Nutrition, Hospitality & Human Services	**Killough, Jill**		**Lamar University Interdisciplinary Fellowship & Training for Underrepresented Professionals in Nutrition (LIFT UP)**	**National Institute of Food and Agriculture**	**$246,000**	**No**
Teacher Education	**Singh, Mamta**	**Hernandez, A.**	**Embracing Individual Paths and Unique Backgrounds**	**US Department of Education**	**$1,944,455**	

Chemical Engineering	Chen, Daniel	Sargsyan, G.	C1H2 Extension Service for Southeast Texas Sustainable Economic Development (C1H2SET)	US Department of Commerce	$188,032	No
Chemical Engineering	Lou, Helen	Roden, T.; Liu, X.; Cai, T.; Richmond, P.	Sul Ross: Midstream Critical Manufacturing Industry Cybersecurity Hub	US Department of Energy	$600,000	Yes
Chemical Engineering	Lou, Helen	Zhang, X.; Bandyopadhyay, K.; Zhang, J.; Richmond, P.	Southeast Texas Data Analytics and Cybersecurity for Energy Supply Chain Resilience Project	US Department of Energy	$766,667	Yes
Chemical Engineering	Lou, Helen	Richmond, P.; Liu, X.; Cai, T.; Tsado, L.	CyberTraining: Pilot: Interdisciplinary Cybersecurity Education to Support Critical Energy and Chemical Infrastructure	National Science Foundation	$299,897	Yes
Chemical Engineering	Jeffryes, Clayton	Lou, H.	No-Heat Low Carbon Emissions Manufacture of Ammonia	US Department of Energy	$599,420	Pending
Chemical Engineering	Xu, Qiang		Multiscale Modeling for the New Conceptual Design of Emission-free Maritime Transportation Fueled by LNG	American Chemical Society	$125,000	Pending
Civil Engineering	Brake, Nicholas		Southeast Texas Flood Coordination Study - Regional Flood Sensor System	Texas General Land Office	$799,852	Pending
Civil Engineering	Hernandez, Annette	Curry, J., Tcheslavski, G.; Uddameri, V.	S-STEM: creating efficient, connected highly integrated systems by tapping early college high school students (ECHIS)2	National Science Foundation	$969,215	No
Civil Engineering	Selvaratnam, Thinesh		A Carbon Capture System for Algae Cultivation and Bioproducts Production using Hybrid Solar Lighting	National Science Foundation	$68,662	Yes
Civil Engineering	Uddameri, Venkatesh	Uddameri, E.	Assessment of Texas coastal watershed delineations using			

College of Engineering	**Strahan, Haley**		**2022-2023 Senior Design Project**	**Lamar Research Foundation**	**$5,000**	**No**
Electrical Engineering	**Tcheslavski, Gleb**	**Vasefi, M.**	**RUI: CRCNS Research Proposal: An EEG-based study of human perception of a dynamically varying color; linear modeling and "instantaneous" approaches**	**National Science Foundation**	**$403,681**	**No**
Electrical Engineering	**Tcheslavski, Gleb**	**Vasefi, M.; Felipe, L.**				

Mechanical Engineering	**He, Ping**	**ERI: Developing 2D/3D Continuum Simulation Algorithms for Two-phase Partially Miscible or Fully Immiscible Fluid**

Table 6: List of internal research grants awarded in FY23

Department	Investigator	Co-PIs	Project Title	Sponsor	Award
Art	Meeks, Donna M	Fedorchenko, X.; Hyatt, J.; Elestwani, M.	Bounce Back2: Artmaking and Resiliency	CfR	$17,200
Biology	Armacost, James		Effect of gull abundance on human pathogen concentrations in seawater along Jefferson County beaches	CfR	$4,290
Biology	Hoch, Matthew	Kubicek, K.	Importance of shallow dredge material lagoon habitat to resiliency and sustainability of fisheries of commercial and recreational valued	CfR	$24,675
Biology	Hoch, Matthew	Kubicek, K.; Harden, G.; Luo, Z.; Liu, X.; McCollough, J.; Qian, Q.	Coastal Sociological-Ecological Restoration Group (CSERG) & Pilot Project: North Pleasure Island Reconstruction Continuation	CfR	$50,979
Biology	Kucknoor, Ashwini		Microbial source tracking and pathogen identification before and after storm-water surges in Jefferson County beaches	CfR	$21,140
Biology	Lian, Ian		Development of molecular agglutination assay for rapid and low-cost pathogen detection platform	CfR	$6,000
Biology	Pyne, Matthew		Survey of water quality and macrobenthos in the tidal Neches River	CfR	$14,500
Biology	Vasefi, Maryam		Generate intervention for disaster resilience regarding cognitive decline progression	CfR	$19,156
Center for Resiliency	Haselbach, Liv	Brake, N.; Qian, Q.; Wu, X.; Selvaratnam, T.; Kim, Y.; Liu, X.; Kruger, J.	Flood Coordination Study FY23	CfR	$300,000
Chemical Engineering	Cai, Tianxing	Lou, H.	Design and development of an IT/OT emerged experiment platform and testbed for energy infrastructure cybersecurity enhancement	CMMS	$34,000
Chemical Engineering	Chen, Daniel	Sargsyan, G.	Evaluating various LNG plant electrification options	CMMS	$34,000
Chemical Engineering	Chen, Daniel		Control of an Optimized Natural Gas Fractionation Train (finalization)	CMMS	$10,000
Chemical Engineering	Jeffryes, Clayton		Development of a rapid, inexpensive, field measurement to reduce process stream demulsificaiton costs	CMMS	$33,991
Chemical Engineering	Lin, Sidney		Protection of Marine Steel Structures by Calcareous Electrodeposition	CAPM	$30,000
Chemical Engineering	Xu, Qiang	Wang, S.	Optimization for natural gas liuefaction with helium recovery for LNG industry	CMMS	$34,000
Chemistry	Wei, Suying	Chandrasekaran,P.; Gunaydin-Sen, O.; Twagirayezu, S.	Quantifying chemical contaminants in Southeast Texas surface water bodies	CfR	$23,000

Health and Kinesiology	**Jordan, Shannon**	**Mullican, J.; Chilek, D.; Spina, R.**

Teacher Education	**Singh, Mamta**		**Assessing post disaster resilience among elementary & secondary teachers**	**CfR**	**$5,000**
Teacher Education	**Yan, Yan**	**Killough, J.; Akkurt, M.**	**Emotionally responsive teaching: Reframing resilience for children and youth experiencing homelessness through story books reading practices**	**CfR**	**$5,000**

English & Modern Languages	Joffe, Sharon	COAS	Departmental	$5,000	Summer Research Fellowship
English & Modern Languages	Nemmers, Adam	COAS	Departmental	$5,000	Summer Research Fellowship
English & Modern Languages	Smith, Amy	COAS	Departmental	$5,000	Summer Research Fellowship
History	Bryan, Jimmy	COAS	Departmental	$5,000	Summer Research Fellowship
History	Kibbe, Tina	COAS	Departmental	$5,000	Summer Research Fellowship
Mathematics	Couch, PJ	COAS	Departmental	$5,000	Summer Research Fellowship
Mathematics	Vega Guzman, Jose	COAS	Departmental	$5,000	Summer Research Fellowship
Nursing	Knight, Stacey	COAS	Departmental	$5,000	Summer Research Fellowship
Nursing	Kostandy, Raouth	COAS	Departmental	$5,000	Summer Research Fellowship
Physics	De La Madrid, Rafael	COAS	Departmental	$5,000	Summer Research Fellowship
Physics	Sen, Cengiz	COAS	Departmental	$5,000	Summer Research Fellowship
Sociology Soc Work Crim Just	Krause, Stefan	COAS	Departmental	$5,000	Summer Research Fellowship
Accounting & Information Systems	Zhao, Yu	COB	Departmental	$6,670	Make a presentation on the findings of the summer research to College of Business faculty at a scheduled session in Fall/Spring 2023-24. Submit a manuscript based on the summer research to an ABDC-ranked journal by May 31, 2024
Business Law	Baldo, Melissa Martin	COB	Departmental	$12,000	Killing Them Softly: The Slow Erosion of Our Constitutional Rights
Accounting & Information Systems	Ruseva, Marina	COB	Departmental	$12,000	Deliverable: Make a presentation on the findings of the summer research to College of Business faculty at a scheduled session in Fall/Spring 20 Submit a manuscript based on the summer research to an ABDC-ranked journal by May 31, 2024.
Marketing	Karani, Komal	COB	i, Kg	session in Fall/l/lFEros	in Fall/pllon in Fall/ Ặ OO Information

Finance	**Chen, Chunda**	**COB**	**Departmental**	**$6,000**	**Make a presentation on the findings of the summer research to College of Business faculty at a scheduled session in Fall/Spring 2023-24. Submit a**

Table 8: Projects funded by the Office of Undergraduate Research in FY23

Faculty Advisor	Student/Department	Title	Grant Type
Andrei, Stefan	Nicholas Wade & Joshua Mallari/Computer Science	The viability of using solar panels to improve the efficiency of EV batteries.	OUR
Bahrim, Bodgana	Aaron Martinez/Physics	Study of Hlateral collisions with Ag(111) metal surfaces, covered by Na adsorbates	OUR
Bahrim, Bogdana	Jonah Watts/Physics	Local effects induced by K adatoms	OUR
Bahrim, Cristian	Tyler Stuck/Physics	Generating the Curve of Dispersion for Silica glasses using a Diode Laser and an Isotropic Source of Energy	SURF
Bradley, Kelley	Noah Bonnette/Industrial Engineef e	Uyistdvatin Ɠ neial siar laadang of ld ¯ n Ȟ c Ő tm lnd SEndl Ő Welf ldo Ʈ lsot ʒ Mne þ i þ ld 2	cc

13. Ygiyeva, D.; Pivina, L.; Messova, A.; Urazalina, Z.; Semenova, Y.; Dyussupov, A.; Dyussupov, A.; Belikhina, T.; Syzdykbayev, M.; Batenova, G.; et al. Paramedic To Provider Consultaəon Challenges in

27.

55. Nur, A. S.; Kim, Y. J.; Lee, J. H.; Lee, C. W. Spatial Predicti

96. **Karaman, M. A.; Burak, D.; Akkurt, M. N. Turkish Adaptation of Contextual Achievement Motivation Measure. International Journal for the Advancement of Counselling 2023. DOI: 10.1007/s10447-023-09519-y.**
97. **Joffe, S. L. Reconsidering Heathcliff in Emily Bronte's Wuthering Heights. Bronte Studies 2023, 48 (1-2), 75-87. DOI: 10.1080/14748932.2023.2182733.**
98. **Jiang, J.; Chen, W.; Qian, Y. C.; Meda, A. H.; Fan, X. J.; Zhang, G. Q.; Fan, J. J. Thermomechanical**

112. Dousti, A.; Saraei, N.; Shekarchi, M.; Nikookar, M. Increasing service life of concretes in sewage treatment plants using silica fume and natural zeolite. Magazine of Concrete Research 2023. DOI: 10.1680/jmacr.23.00129.
113. Dofanga, S.; Xie, D. J.; Lee, J. F.; Zhang, A. Y.; Shi, L.; Khaldarov, V. A Time Frequency Domain Based Approach for Ball Grid Array Solder Joint Fatigue Analysis Using Global Local Modeling Technique. Journal of Electronic Packaging 2023, 145 (3). DOI: 10.1115/1.4056886.
114. Dong, M. C.; Saini, R. Positive Polly or Debbie Downer? How Social Exclusion Affects Consumer's Online Information Sharing. Journal of Business Research 2023, 166. DOI: 10.1016/j.jbusres.2023.114126.
115. Diehl, S.; Trotta, N.; Joo, K.; Achenbach, P.; Akbar, Z.; Armstrong, W. R.; Atac, H.; Avakian, H.; Baashen, L.; Baltzell, N. A.; et al. First Measurement of Hard Exclusive Electroproduction Beam-Spin Asymmetries off the Proton. Physical Review Letters 2023, 131 (2). DOI: 10.1103/PhysRevLett.131.021901.
116. Diehl, S.; Kim, A.; Joo, K.; Achenbach, P.; Akbar, Z.; Amaryan, M. J.; Atac, H.; Avagyan, H.; Gayoso, C. A.; Baashen, L.; et al. A multidimensional study of the structure function ratio σ_{LT"}/σ₀ from hard exclusive π electro-production off protons in the GPD regime. Physics Letters B 2023, 839. DOI: 10.1016/j.physletb.2023.137761.
117. DeMars, T. R. Editor's Remarks: History, Impact and Entertainment: Radio and Audio Continue to Engage. Journal of Radio & Audio Media 2023, 30 (1), 1-5. DOI: 10.1080/19376529.2023.2206260.
118. de la Madrid, R. [illegible]

140. **Biswas, A.; Vega-Guzman, J.; Bansal, A.; Kara, A. H.; Aphane, M.; Yildirim, Y.; Alshehri, H. M. Solitary waves, shock waves and conservation laws with the surface tension effect in the Boussinesq equation. Proceedings of the Estonian Academy of Sciences 2023, 72 (1), 17-29. DOI: 10.3176/proc.2023.1.03.**
141. **Barcena, A. J. R.; Perez, J. V. D.; Damasco, J. A.; Bernardino, M. R.; San Valentin, E. M. D.; Klusman, C.; Martin, B.; Cortes, A.; Canlas, G. M.; Del Mundo, H. C.; et al. Gold Nanoparticles for Monitoring of Mesenchymal Stem-Cell-Loaded Bioresorbable Polymeric Wraps for Arteriovenous Fistula Maturation. Internati**