**United States Coast Guard Academy**



**Academic Division Annual Report:**

**Faculty Research Forum – calendar year 2024**

**Volume 13**

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# Faculty Research Forum

In 2023, the Center for Advanced Studies was succeeded by the Faculty Research Forum (FRF). PROVINST 3910.3 was published on 17APR2023 to “establish and provide the purpose and operating guidelines of the Coast Guard Academy Faculty Research Forum (FRF). The FRF function similarly involves a group of faculty and staff members interested in supporting, promoting, and publicizing scholarly activities performed by the faculty of the United States Coast Guard Academy.

Our *CAS Process Improvement Initiative* efforts resumed in 2023 with CAS community event being held on 06FEB2023. The objective of this event was to share and begin prioritizing the brainstorming ideas that were gathered in 2022. Also, CAPT Gregory Hall, Ph.D., the Vice Provost for Research from the Office of Scholarship, Research, and Innovation (OSRI) suggested the CAS community consider rebranding CAS due to CAS not being aligned to the current defined concept of a ‘Center’.

Over the next two months, the CAS community was requested to review the documented brainstorming ideas and provide their feedback to the Chair of CAS by 24FEB2023. Feedback from CAS members (n=14) on prioritization of brainstorming ideas was received. For each of the five topics, we identified the top three (3) priorities as follows.

Our Vision and Mission

1. Strengthen our ability to perform the following:
   1. Promote interdisciplinary/collaboration among faculty/cadets
   2. Foster/facilitate research with professional development opportunities
   3. Collaboration with outsiders (i.e., universities, industry)
2. Focus on the Mission towards building a community/culture of research
3. Encourage, support, and celebrate faculty scholarship at the USCGA

Policy, Processes and Procedures

1. Identify obstacles to faculty scholarship and work with appropriate leadership to remove them
2. Establish ways to promote scholarship throughout the CAS community
3. Empower Rotators to be a part of the academic research culture

Supporting Structure

1. Establish mechanisms to build and strengthen scholarship
   1. Develop grant opportunities
   2. Increase funding for research and travel
   3. Use a clearinghouse for academy-wide authorship (i.e., newsletters)
2. Increase awareness of CAS community research and improve inter-disciplinary collaboration (i.e., ORCID use, a repository for capstone projects, directed study, faculty research)
3. Improve web governance (i.e. committee), design and maintenance processes to increase research and improve inter-disciplinary collaboration (i.e., committee)

Innovation and Sustainability

1. Establish innovative space for faculty scholarship efforts
2. Continuously strengthen innovative and sustainable research practices that help the following:
   1. Implement a digital repository for capstone projects
   2. Encourage researchers to conduct CGA research that helps uniquely position research to be published
3. Foster practical CG-wide research projects, and collaboration among faculty, staff, and cadets with the CG Research & Development Center

Other

1. Standardize research funding processes
   1. Ensure delivery of equitable research support for CAS community members
   2. Promote external scholarship metric systems (i.e., ORCID, Goggle Scholar, Research Gate)
2. Turn into an active community of practice and build culture
3. For research efforts,
   1. Seek continuous feedback on individual and collaborative opportunities,
   2. Build mentorship program efforts for rotating military faculty (RMF) or new faculty members
   3. Foster periodic (i.e., monthly) informal lunches where CAS community members can share research ideas, challenges or in-progress projects

In April 2023, the CAS Process Improvement Initiative’s results were published and distributed to OSRI and the FRF community. Upon completion of the CAS Process Improvement Initiative, this formal project was closed.

**Leadership of the Faculty Research Forum:**

Chair – Dr. Angela Jackson-Summers

Lunchtime Seminar Chairperson – PROF Karina L. Mrakovcich

Summer Fellowship Chairperson – PROF Elizabeth Rivero

Annual Report Chairperson – PROF Joshua Gray

# Lunchtime Seminar Series

The lunchtime seminar series fosters interdepartmental communication and awareness of scholarly activities across campus. Seminars are designed for a wide audience. As members of the CAS luncheon seminar subcommittee, Dr. Karina Mrakovcich (Chair), Zak Kudlak, Evan Haglund, and Arundhati Misra organized seven talks in 2024.

* January 29, 2024: Michael C. Bellissimo, “Reliability and resilience at US hospitals during the global pandemic: A mixed methods study on the effects of leader and team behavior on crisis response.”
* March 20, 2024: Corinna Fleischmann, Hudson Jackson, and Brian Maggi. “Enriching student learning through active participation in a coastal resiliency course”
* April 17, 2024: Dr. Yang Xu, "Using AI in Teaching."
* September 18, 2024: Wes Huffman, “Hg in the Bering Sea”
* October 10, 2024: David Burn and Stanley Rothman, "A Statistical Ranking of the Top Ten Professional Sports Teams of All Time"
* October 30, 2024: Elise Jones and Peter Imbriale, "Factors Motivating Coast Guard Members' Continued Service and Their Relationship with Length of Service"
* December 4, 2024: Kanani K. M. Lee, “Importance of impurities  in melting at high pressures: A case study of Molybdenum”

# Fellowship Subcommittee

Each summer, the Center for Advanced Studies supports the research activities of two or more faculty members. This program is open to all faculty at the Academy: civilian, permanent military, and rotating military. This highly competitive program provides the faculty an opportunity for focused research.

## 2024 Summer Fellowship Awardees

* Dr. Kanani K. M. Lee, “Salty ices at high pressures,” NASA proposal development
* Dr. Kanani K. M. Lee, “Temperature Correction in the LHDAC,” NSF proposal development
* LT Patrick W. Ledzian, “Decentralized Synchronization of Underwater Buoyancy

Gliders”

* Dr. Elise Jones, “The Role of Agency in Inter-Identity Work” and “US Coast Guard

Retention”

* LCDR Peter Imbriale, “US Coast Guard Retention: Extended Analysis of Data Gathered via a 3-year Management + ORDA Capstone Project” and “Post-Disaster Material Convergence: Shifting from In-Kind Donations”
* Dr. Arundhati Bagchi Misra, “Image Denoising Using Deep Learning Techniques”

# Acknowledgements

The Faculty Research Forum thanks the following professors for their work in helping to assemble and proofread this document: PROF Elizabeth Rivero, PROF Kassim Tarhini, PROF Angela Jackson-Summers, PROF Arundhati Bagchi Misra. The lead editor for the document was PROF Joshua Gray.

In 1990, the Center for Advanced Studies (CAS) was established and later reorganized in 2012 by Superintendent’s Instruction 1531.38C. With the publication of PROVINST 3910.3 on 18APR2023, the Coast Guard Academy Faculty Research Forum (FRF) was established and provided purpose and operating guidelines replacing CAS.

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# School of Engineering

# Engineering Department Scholarship, 2024

## Peer-reviewed Journal Articles

Jackson-Summers, Angela G., Karina L. Mrakovich, Joshua P. Gray, Corinna M. Fleischmann, Tooran Emami and Eric J. Page. (Jan 2024) “A systematic review of inclusive pedagogical research using the CIRTL inclusive pedagogy framework: mulit-disciplinary and STEM perspectives, current trends and a research agenda”, Discover Education: Article 93. <https://doi.org/10.1007/s44217-024-00093-y>

Ryan, K., Tobey, E., Burke, D., Larkin, T., Taylor, T., Lawrance, A., and Thomas, B. (2024) “Lift boat Stability Using Energy-to-Incline and Varying Inclination Direction,” Journal of Ship Production and Design (Vol 12, Issue 11).

Meyers, J., T. Sayre-Mccord, Z. Zhang and H. Singh, "Toward a COLREGs Compliant Autonomous Surface Vessel in a Constrained Channel," in *IEEE Transactions on Field Robotics*, vol. 1, pp. 537-547, 2024, doi: 10.1109/TFR.2024.3457273.

## Books and Book Chapters

Mazurek, David.  (2024). “Engineering Landmark,” *The Monticello*, Chapter 6, Ontario & Western Railway Historical Society, Middletown, NY, 16 pages.

Beer, F.P., Johnston, E.R., and Mazurek, D.F., *Vector Mechanics for Engineers: Statics*, 2024 Release, McGraw-Hill, New York, NY, 614 pages.

**Patents Awarded**

Smith, S. R. Brande, N. Richerson, B. Crutchfield, C. Breviario, R. Adrezin, M. Plumley, M. Lewandowski, "Rescue Basket," *Patent Number US 11,858,636*: Jan 2, 2024.

Long, L., C. Burzycki, G. Armstrong and J. Camean, “Self-Orienting Suction Point for Fluid Transportation,” Patent Number US12,071,214: August 27, 2024.

**Dissertations/Thesis:**

LCDR Jennifer Rogers. “Data Augmentation for Smart Grid Anomaly Detection.“ PhD Dissertation defended 02 April 2024, University of Rhode Island.

## Conference Papers & Presentations

Bonomi, B., Laudenslager, H., and Taylor, T. “Totally Enclosed Lifeboat and Rescue Boat Stability.” SNAME Maritime Convention. Norfolk, VA. October 2024.

EL Khatib, D. ““Ensuring Modern Standards are Met at Older Facilities-Two USCG Case Studies”. Oral presentation at 2024 World Environmental & Water Resources Congress. Milwaukee, Wisconsin, May 20, 2024.

Emami, T., “Project-Based Learning on Diverse Concepts in a Power Electronic Laboratory,” Paper presented and published in the Proceedings of the 2024 ASEE Annual Conference and Exhibition, Portland, Oregon, June 23-26, 2024.

Fleischmann, C., Jackson, H., and Tarhini, K. “Pedagogical Changes to a Capstone Course to Foster Refinement of Professional Skills.” Paper presented and published in the Proceedings of the 2024 ASEE Annual Conference & Exposition, Portland, Oregon, June 2024, 10.18260/1-2-47835.

Nuzzo, W., Elwakil, M., and Gollamudi, A. “Automatic Inference of Enclave Placement in LLVM Compiler,” Principles of Secure Compilation, 52nd ACM SIGPLAN Symposium on Principles of Programming Languages, Accepted in 2024 and presented 20 JAN 2025. (POPL 2025).

Maxam, W. and Davis, J., ‘An Interview Study on Third-Party Cyber Threat Hunting Processes in the U.S. Department of Homeland Security’. In 33rd USENIX Security Symposium, 2333–50. Philadelphia, PA: USENIX Association, August, 2024.

McGarry, Dahnyoung, Hartnett, R. J., Swaszek, P., DeCoste, M., Ferderer, A., Leventhal, C., and Mitchell, R., "Locating Simultaneous VHF Distress Calls Using a Single LEO Satellite – An Idea for Augmenting Rescue 21 in Alaska," Proceedings of the 37th International Technical Meeting of the Satellite Division of The Institute of Navigation (ION GNSS+ 2024), Baltimore, MD, September 2024, pp. 539-559. <https://doi.org/10.33012/2024.19789>.

Rogers, J., W. Danilczyk, H. Lin and Y. L. Sun, (2024) “Prediction-based Data Augmentation for Line Outage Detection," *56th North American Power Symposium (NAPS)*, El Paso, TX.

**Other Publications (Magazine articles)**

Elwakil, M. “C-ing is Believing - A Vulnerable Login System for Teaching Buffer Overflow Attacks and Mitigation Strategies.” Poster presentation at the CAE in Cybersecurity Community Annual Symposium, April 15th, 2024.

## Speaking Engagements & Awards

Emami, T. " Utilizing Frequency Data for PID Controller Design," Keynote Speaker, 24th Annual IEEE International Conference on Electro Information Technology, Eau Claire, Wisconsin, May 2024.

Emami, T., received the Recognition Award for the Keynote Speaker at the 24th Annual IEEE International Conference on Electro Information Technology, Eau Claire, Wisconsin, in May 2024.

Emami, T. received the Certificate of Appreciation Award in grateful recognition of service to Professional Interest Council III during the 2024 ASEE Annual Conference.

James, R., Burbank, D., Allen, L., Mehta, C., Hartnett, R., McGarry, D., Asundi, S., Abedrabbo, J., Heckman, C., and Kay, B., “*SeaLion Doppler & Comms USCG Payload*". CDW- Cubesat Developer's Workshop April 23-25, 2024, California Polytechnic State University, San Luis Obispo, CA.

James, R., Burbank, D., Allen, L., Mehta, C., Hartnett, R., McGarry, D., Asundi, S., Abedrabbo, J., Heckman, C., and Kay, B., “*SeaLion 3U Impedance Probe Space Plasma Measurement Investigations*".  CDW- Cubesat Developer's Workshop April 23-25, 2024, California Polytechnic State University, San Luis Obispo, CA.

Mazurek, David. “The O&W’s Phœnix Bridge Spanning the Neversink, and its Builder,” Keynote Speaker, Ontario & Western Railway Historical Society’s Annual Convention, Campbell Hall, NY, November 9, 2024.

## Cadet Capstones or Senior Projects

Conner, L. (CEE), Hall, K., Hudson, J. TJ Ingersoll, and Francis Wood (2024). “Vessel Incidental Discharge Act – Greywater Treatment System.” Cadet Research Symposium, New London, CT. Advisors: Dean Zelmanowitz and LCDR Stroebel.

Gadsden, D. (CEE), Cowles, M., Morris, L., and Clements, J. (2024). “U.S. Coast Guard Academy – Area Development and Planning Team.” Cadet Research Symposium, New London, CT. Advisors: Dr. Jackson and LT Keiffer.

Breidenthal, J. (CEE), Carroll, S., Kerr, A. and Moore, A. (2024). “Base Charleston – Consolidated Administration Building.” Cadet Research Symposium, New London, CT. Advisors: Dr. Tarhini and LT Milanese.

Duffy, A. (CEE), 1/c Ben Wagner, 1/c Crystal Kim, 1/c Joshua France, J. (2024). “Station Noyo River – Seawall Design.” Cadet Research Symposium, New London, CT. Advisors: Dr. Jackson and CAPT Maggi.

Dougherty, B. (CEE), Magee, I, McCue, D., and Wismar, K. (2024) “Training Center Petaluma – Stormwater Management Design.” Cadet Research Symposium, New London, CT. Advisors: Dr. Elkhatib and CAPT Fleischmann.

Hiigel, T. (CEE), Pfleghar, W., Ross, M., and Smigal, A. (2024). “Coast Guard - Station of the Future.” Presented at Coast Guard Heas Quarters, Washington, D.C., Advisors” CAPT Maggi and LT Milanese.

Humphrey, A. (CEE), Osborn, A., Wheater, T., and Yacovone, A. (2024) “Station Juneau – Wharf Design.” Cadet Research Symposium, New London, CT. Advisors: Dr. Mazurek and LT Keiffer.

Cousineau, Z. (EE), and Charles Norman (EE) (2024) “Formal Methods for Information Security.” Cadet Research Symposium, New London, CT. Advisors: Dr. Elwakil.

Mee, M (EE), Maria del Rosario Chan (EE), Pierson Wade (EE), Milo Bertrand (EE), (Spring 2024) “Intelligent Hybrid Power Plant.” Cadet Research Symposium, New London, CT. Advisor: Dr. Emami.

Hartung, J. (EE), Sontino Allentuck (EE), Jonathan Prince (ME), and John Rex Gaviola (ME), (Fall 2024). “Intelligent Hydrogen Hybrid Plant.” Cadet Research Symposium, New London, CT. Advisor: Dr. Emami.

Arnold, F. (EE), Baglrov, E., Dreher, S., Kim, J. and Mathes, A. “ML/Deep Learning for Cyber War Gaming.” Cadet Research Symposium, New London, CT. Advisor: LT Quarry.

Austin, O. (EE), Fulton, C., Reheuser, M., Taha, L., and Vigo, R. (2024). “Embedded System security.” Cadet Research Symposium, New London, CT. Advisor: LCDR Veara.

Castel, J. (EE), Regan, A., and Rochard, S. (2024). “Passive Acoustic Tracking and Classification.” Cadet Research Symposium, New London, CT. Advisor: LT Ledzian.

McMahon, N. (Cyber) and Young, C. (2024). “Cadet Accountability.” Cadet Research Symposium, New London, CT. Advisor: Mr. Gold.

Carpenter, J. (EE), Dryer, J., Oakes, L., and To, E. (2024) “ML/AI for Maritime Domain Awareness.” Cadet Research Symposium, New London, CT. Advisor: LT Maxam.

Barbee, S. (EE), Hiigel, E. and Ratliff, E. (2024) “Roboboat Competition.” Cadet Research Symposium, New London, CT. Advisor: Mr. Choi.

DeCoste, M. (EE), Ferderer, A. and Mitchell, R. (2024) “Satellite Rescue 21.” Cadet Research Symposium, New London, CT. Advisor: Dr. Hartnett and LCDR McGarry.

Glivar, G. (NA&ME), Haynia, L., Piotrowski, M., Tobey, E. (2024) “Design of the Maritime Transportation Cutter (MTC), a dual-draft heavy icebreaker designed to augment the United States Coast Guard's current Great Lakes icebreaking capabilities.” Presented at the Coast Guard Yard, Baltimore, MD. Advisor: LT Isabelle Levitsky

Guba, T. (NA&ME), La Dine, J., Pepperd, C., Red, C. (2024) “Design of a 280ft long USCG Great Lakes Icebreaker that runs on an integrated power system and 3 azipod propulsors, with an extra focus on maneuverability.” Presented at the 2024 Annual Cadet Research Symposium. New London, CT. Advisor: Dr. DeNucci

Martin, A. (NA&ME), Stevens, L., Stefanyshyn, A., Summers, J. (2024) “Design of a Maritime Transportation Cutter (MTC) meeting ABS Marine Rules and U.S. Navy Design Standards; this vessel is equipped with an ultimate icebreaking bow and W-stern to readily break 36 in of freshwater ice at 3 kts” Presented at Coast Guard Head Quarters. Washington, D.C., Advisor: LT Levitsky

Flores-Bencomo, J. (NA&ME), Lane, H., Gil-Regalado, V., Ryan, K. (2024) “Design of a commercial 443-foot wind turbine installation vessel (WTIV) able to transport and install two full GE Haliade–X 14 MW turbines (including towers, nacelles, and rotors) in the northeastern U.S” Presented at Coast Guard Head Quarters. Washington, D.C., Advisor: LCDR Brahan

Kaleta, S. (NA&ME), Lizardo, H., Motherway, S. (2024) “Design of a commercial wind-turbine service operations vessel for the Vineyard Wind Farm.” Presented at the 2024 Annual Cadet Research Symposium. New London, CT. Advisor: LCDR Bonomi

Flander, J. (NA&ME), Pavlovich, C., Rogacki, C., Tacchini, J. (2024) “Design of a commercial feeder support vessel capable of providing accommodations and transporting deck cargo such as turbines and blades to the on-site wind turbine installation vessel.” Presented at the 2024 Annual Cadet Research Symposium. New London, CT. Advisor: LCDR Brahan.

Moyer, D. (ME), Smith, M., and J.D. Soca (2024) “Zero Emission Ships.” Cadet Research Symposium, New London, CT. Advisor: Dr. Foley.

Duffin, M. (ME), Kunka, B., Rivera, A., and Rothe, N. (2024). “Ship Cam LIDAR.” Cadet Research Symposium, New London, CT. Advisor: LCDR Burke.

Boykin-Holland, C. (ME), Esmond, N., Fish, C., and Riccio, M. (2024). “Electric P-6 Pump.” Cadet Research Symposium, New London, CT. Advisor: LCDR Stroebel.

Johnson, J. (ME) and Yraola, N. (2024). “Pressure Sore Prevention Concept.” Cadet Research Symposium, New London, CT. Advisor: Dr. Adrezin.

Brady, M. (ME), Ortez, I., and Tipton, D. (2024. “Reverse Osmosis High Pressure Pump.” Cadet Research Symposium, New London, CT. Advisor: Dr. Foley.

Bay, L. (ME), Belghau, R., Gholson, S., Pagan-Selby, M., Raymond, D., and Younes, R. (2024) “SeaLion Cube Satellite.” Cadet Research Symposium, New London, CT. Advisor: CAPT(ret) Burbank.

# School of Science, Mathematics, and the Humanities

# Chemical and Environmental Sciences Department, 2024

## Peer Reviewed Articles

Aleksunes, L.M., J.P. Gray, J. Meshanni, J.D. Laskin, and D.L. Laskin. (2024). Repurposing FDA-approved drugs to treat chemical weapon toxicities: Interactive case studies for trainees. *Pharmacol Res Persp.* 12:e1229. <https://doi.org/10.1002/prp2.1229>

East, A.; Polasek, C.G.; Miller, E.A.; Ranganathan, S.; Reda, I.D.; Patel, A.; Ahlers, C.D.; Zingales, S.K.; Karver, C.E. (2024) "Expansion of the structure-activity relationship profile of triaminopyrimidines as inhibitors of caspase-1." *Chemical Biology & Drug Design*, 109, e70031.

Hall, G.J., E.J. Page, M. Rhee, C. Hay, A. Krause, E. Langenbacher, A. Ruth, A.P. Duran, I. Kamara, J.K. Iskander, F. Alsayyid, D.L. Thomas, N. Porta, B.A. Osterink, S. Zelmanowitz, C.M. Fleischmann, D. Liyanage, and J.P. Gray. (2024) Wastewater Surveillance of US Coast Guard Installations and Seagoing Military Vessels to Mitigate the Risk of COVID-19 Outbreaks, March 2021-August 2022. *Public Health Rep.* 139(6):699-707. <https://doi.org/10.1177/00333549241236644>

Schroeder, J, Polemi, K.M., Tapaswi, A, Svoboda, L.K., Sexton, J.Z., and J.A. Colacino. (2024) “Investigating phenotypic plasticity due to toxicants with exposure disparities in primary human breast cells *in vitro*” *Frontiers in Oncology*(14).

Wackerly, J.W.; Wentzel, M.T.; Zingales, S.K. (2024) "Teaching Abductive Reasoning for Use as a Problem-Solving Tool in Organic Chemistry and Beyond." *Frontiers in Education*9, 1412417.

## Books and Book Chapters

Gray, J.P., S. Rotering, Z. Smith, M. Danai, D. Genis, S. Mahmood, and S. D. Ray. (2024) Recent clinical studies on metals and metal antagonists. In: Ray, S.D. (Ed.), Side Effects of Drugs Annual, 46th edition. Elsevier Inc.

Ray, S.D., M. S. D’Souza, and J. P. Gray. (2024) Analysis of ADRs, ADEs, drug interactions, toxicity and side effects of drugs in the shadow of vaccines, drug-antibody conjugates and pharmacogenomics. In: Ray, S.D. (Ed.), Side Effects of Drugs Annual, 45th edition. Elsevier Inc.

## Conference Presentations

Gray, J.P., M. Reynolds, J. Das, C. Vengrin, B. Eidemiller, J. Flaws, and W. K. Rumbeiha. The Toxicology Mentoring and Skills Development Training (ToxMSDT) Program Launches New Case Studies and Revised Skills Development Online Modules for Undergraduates and Undergraduate Educators. *Presented at the 2024 Annual Meeting of the Society of Toxicology, Salt Lake City, UT.*

Wackerly, J.; Wentzel, M.; Zingales, S.K. "Helping Pre-Health Students Prepare for the DAT and OAT: Insights into the Design and Evolution of the Organic Chemistry Subsection in the Survey of Natural Sciences." Biennial Conference for Chemical Education (BCCE), Lexington, KY, July  2024

Zingales, S.K. "What's that peak? Finding new research questions from unexpected results."  Midwestern Regional Meeting of the American Chemical Society (MWRM), Omaha, NE, October 2024

Zingales, S.K. "Turning a chalcone research challenge into a multi-week course-based research experience in Organic Chemistry II Laboratory." National Meeting of the American Chemical Society (ACS), Denver, CO, August 2024

Zingales, S.K.; Wentzel, M.; Wackerly, J. "Summative rubric evaluation for the assessment of mechanism questions in the second-year organic chemistry course sequence." Biennial Conference for Chemical Education (BCCE), Lexington, KY, July 2024

Zingales, S.K. "Fostering Non-Major Student Engagement in Organic Chemistry 1." Biennial Conference for Chemical Education (BCCE), Lexington, KY, July 2024

## Grants

Gray, J. P., National Science Foundation, $399,131, 10/1/24-9/30/27, StressCURE: A Course-based Undergraduate Research Experience Toolkit for Creating Laboratory Courses That Investigate Biological Stress in the Roundworm *Caenorhabditis elegans*.

Zingales, S.K. (2024-2028) Investigating the Mechanism and Activity of T3P as a Dehydrating Reagent in Organic Synthesis, American Chemical Society Petroleum Research Fund for Undergraduate Research (ACS-PRF UR), $70,000

## Cadet Presentations

1/c Jessy George, 1/c Emma Lynch-Galvin, 2/c Sophia White, 2/c Margarita Hillon, 2/c Kira Howard. Assessment of Dielectric Fluid: Chemical and Physical Properties that Impact Spill Modelling. Advisors: CAPT Hall, Dr. Frysinger

1/c Brenden Ahl, 1/c Madeline Fender, 1/c Carmen Zipf. Quantitative Investigation into Potential Counterfeit Doxycycline. Advisor: LCDR Jocis

1/c Chris Flynn and 1/c Mickey Huynh. Effect of cytochrome P450 oxidoreductase expression on susceptibility of C. elegans to oxidative stress. Advisor: Dr. Josh Gray

1/c Jessy George, 1/c Grace Sickendick, 1/c Madison Garrigus. Detection of Trace Illicit Drugs with the MX908 High Pressure Mass Spectrometer. Advisor: Dr. Glenn Frysinger

# Culture and Languages Department Scholarship 2024

## Peer-reviewed Journal Articles

Gonzalez, J.B. “A Skillet Poem.” Here. 2024 Issue. Reprinted in 2024 Pushcart Prize XLVIII Best of Small Presses. Edited by Bill Henderson with the Pushcart Prize Editors. Pushcart Press 2024th Edition.

Rivero, E. (2024) “Más allá de los límites: Memorias, silencios y afectos en *Secretos de lucha* (2007)” *Tropelías: Revista de teoría de la literatura y literatura comparada* (10): 159-178.

## Book and Book Chapters

Rivero, E. (2024). “*Úselo y tírelo* (Eduardo Galeano).” In *Ibero-American Ecocriticism.* J. Manuel Gómez, editor. Maryland: Lexington Books.

## Conference Presentations

Gonzalez, J.B. Afro-Latinidad: A Poetic Movement Springfield Museum. May 2024.

Gonzalez, J. B. Featured Presenter: Contemporary Latinx Poetry. Connecticut Poetry Society. April 2024.

Gonzalez, J.B. Keynote Speaker. Phi Beta Kappa Ceremony. Connecticut College. May 2024.

Gonzalez, J.B. Featured Presenter. Martin Espada and Jose B. Gonzalez; A Conversation about Poetry. Connecticut Poetry Society. October 2024.

## Conference Proceedings

Gonzalez, J.B. Afro-Latinidad: A Poetic Movement. Springfield Museum. May 2024.

Gonzalez, J. B. Featured Presenter: Contemporary Latinx Poetry. Connecticut Poetry Society. April 2024.

Gonzalez, J.B. Keynote Speaker. Phi Beta Kappa Ceremony. Connecticut College. May 2024.

Gonzalez, J.B. Featured Presenter. Martin Espada and Jose B. Gonzalez; A Conversation about Poetry. Connecticut Poetry Society. October 2024.

## Other Publications

Gonzalez. J.B. “With Hope: Jose B. Gonzalez Interviews Philip Levine Prize Winner, Eric Morales-Franceschini. Latino Stories. May 2024.   
  
Gonzalez. J.B. “From Beethoven to Jenni Rivera: Jose B. Gonzalez Interviews Luis Lopez-Maldonado.” Latino Stories. June 2024.

Gonzalez. J.B. “The Chicano-Poet-Marine: Jose B. Gonzalez Interviews Vincent Cooper.” Latino Stories. March 2024.

Gonzalez. J.B. “Chacon’s Gems: Book Review of the Last Philosopher in Texas.” Latino Stories. July 2024.   
  
Gonzalez. J.B. “The Top Ten Debut Latine Authors of 2024.” Latino Stories. December 2024.

## Scholarly Awards:

Gonzalez, J.B. Pushcart Prize, an American literary prize honoring the best of small presses.

# Government Department Scholarship 2024

## Peer-reviewed Journal Articles

Denton, Ginger and Howard B. Sanborn. 2024. “Who Can You Blame? Trust in institutions and mobilization across regimes in Asia,” *Asian Journal of Comparative Politics*. 9(2): 324-339.

# Marine Science Department, 2024

## Peer Reviewed Articles

Jackson-Summer, A. G, K. L. Mrakovcich, J. P. Gray, C. M. Fleischmann, T. Emami, and E. J. Page.  2024. A systematic review of inclusive pedagogical research using the CIRTL inclusive pedagogy framework: multi‑disciplinary and STEM perspectives, current trends and a research agenda. *Discover Education* 3:30. [https://doi.org/10.1007/s44217-024-00093-y](https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fdoi.org%2F10.1007%2Fs44217-024-00093-y&data=05%7C02%7CJoshua.P.Gray%40uscga.edu%7Cc0030a390eeb4639168208dd4a0fa02f%7Cb110d8878bfb40f2973ab6915bb7ecb1%7C0%7C0%7C638748153169571082%7CUnknown%7CTWFpbGZsb3d8eyJFbXB0eU1hcGkiOnRydWUsIlYiOiIwLjAuMDAwMCIsIlAiOiJXaW4zMiIsIkFOIjoiTWFpbCIsIldUIjoyfQ%3D%3D%7C0%7C%7C%7C&sdata=2sMCfJJQyAaw7riBXoaewCRN236ItVHtUog5U7azyx0%3D&reserved=0)

Mrakovcich, K. and C. LaCasse. 2024 . Prompting Engagement: Scaffolded Writing Designed to Enhance Student Learning in Fisheries Biology". Journal of College Science Teaching. <https://doi.org/10.1080/0047231X.2024.2405440>

Vlietstra L.S., and J.E. Thoenen. (2024) “Poleward shifts in commercial fishing vessels over the Bering Sea Shelf, 2013-2022” *Polar Biology* 47(1): 1121-1135.

## Conference Presentations

Bergondo, D., B. Berman, J. Rodriguez, D. Loomis, and T. Polon (2024) Endangered Species & Response Actions Dashboard, International Oil Spill Conference, May 12-16, 2024, New Orleans, LA.

Futch, V., G. Python, B. Hwang, E. Bornarth, N. Kalfis, D. Loomis and G. Hare. The Impact of Offshore Wind Turbines on Atmospheric and Oceanic Wakes: Implications for Search and Rescue Operations. *Presented at 24th Conference on Atmospheric and Oceanic Fluid Dynamics, Burlington, VT*

Lambie E.G., and L.S. Vlietstra. “ Introducing students to hazard mitigation using ArcGIS Pro and the FEMA National Risk Index” International Association of Emergency Managers Conference, Colorado Springs, CO, November 2024.

McGrath, G. and D. Bergondo (2024) Expanding Numerical Modeling across the United States to Test Geographic Response Strategies, International Oil Spill Conference, May 12-16, 2024, New Orleans, LA.

Persun, M., D. Bergondo, and T. Polon (2024) Multi-dimensional Quantitative Analysis for Geographic Response Strategy Validation, May 12-16, 2024, New Orleans, LA.

Vlietstra L.S., and  K.R. Hinrichs “Proximity of commercial maritime traffic to the Arctic Marginal Ice Zone, 2012-2023” Keynote speaker, Arctic Frontiers Conference, Tromsø, Norway, January 2024.

## Conference Proceedings

 Bergondo, D., B. Berman, J. Rodriguez, D. Loomis, and T. Polon (2024) Endangered Species and Response Actions Dashboard, International Oil Spill Conference Proceedings 2024.

McGrath, G. and D. Bergondo (2024) Expanding Numerical Modeling across the United States to Test Geographic Response Strategies, International Oil Spill Conference Proceedings 2024.

Persun, M., D. Bergondo, and T. Polon (2024) Multi-dimensional Quantitative Analysis for Geographic Response Strategy Validation, International Oil Spill Conference Proceedings 2024.

## Invited Lecture

Vlietstra L.S., and K.R. Hinrichs. (2024, Feb. 14) “Maritime traffic in the summer Arctic Marginal Ice Zone: an application of the Global Maritime Traffic Density Service” GEOINT Foundations, National Geospatial-Intelligence Agency, Springfield, VA.

## Grants

Bergondo, D. Great Lakes Center of Expertise, $25K, 10/1/23-9/30/24: Determining the transport and fate of non-conventional oils in the Great Lakes.

Mrakovcich, K. 2024. n24\_052, Env. Studies Endowment, IUU Fishing Capstone. Funded travel expenses for cadets to conduct their capstone research.

Mrakovcich, K. 2024. n24\_053, Env. Studies Endowment, Microplastics Capstone. Funded expenses for cadets to present their capstone research at a conference.

## Awards

Mrakovcich, K. 2024. Special Achievement Award, American Fisheries Society Southern New England Chapter (SNEC).  Description of award: Dedication to SNEC has been integral to the success of the Chapter, especially regarding its support of student involvement and professional development.

## Cadet Presentations

Beauchemin, E., M. Lierman, S. Olson, S. Skurat, C. Waters. Chemical analysis of plastic particles in the Thames River Estuary and the digestive system of seabirds in Tasmania, Australia. 2024. Presented at Presented at the Undergraduate Symposium and the Southern New England Chapter of American Fisheries Society meeting. Advisors: Dr. K. L. Mrakovcich, Dr. D. Bergondo, LCDR Matt Brigham.

Brick, R. and E. Davis-Morin. 2024. Illegal, Unregulated, Unreported Fishing (IUUF) off the West Coast of Africa. Presented at the Undergraduate Symposium and NGA Day. Advisors: Dr. K. L. Mrakovcich, CAPT V. Futch, and Dr. D. Selch.

Lingle, C., N. Littlejohn, E. MacGregor, and S. Shaw. 2024. Marine debris and microplastics in Coastal Environments of Connecticut. Presented at the American Museum of Natural History Student Conference on Conservation Science in New York City. Advisors: Dr. K. L. Mrakovcich, Dr. D. Bergondo, LCDR Matt Brigham.

Mann, K. 2024. Examining public perception of horseshoe crab conservation in Long Island Sound. Connecticut College, Goodwin-Niering Center for the Environment. Advisors: Dr. K. Mrakovcich and Dr. M. Rosa.

Sanchez, S., and J. Gustafson. Illegal, Unreported and Unregulated Fishing of Red Snapper, Lutjanus campechanus, in the Northwest Gulf of Mexico. Advisors: Dr. K. L. Mrakovcich, CAPT V. Futch, Dr. D. Selch and LCDR K. Zelman.

## Cadet Research Symposium

1/c Emily Bornarth, 1/c Nikolaos Kalfas, 1/c David Loomis. Changes in Drift Patterns Due to the Presence of Offshore Windfarms. Advisor: CDR Victoria Futch

1/c Anna Buelt, 1/c Annabelle Figueroa. The Socioeconomic Impacts of Climate Change: Finding Solutions Through Sustainable Resources and Cultural Resilience. Advisors: LTJG Ammie Chittim, Ms. Erin Lambie

1/c Chloe Hudson and 1/c Dave Zak. In-situ Validation of Search-and-Rescue (SAR) Modelling. Advisors: LCDR Collin Tuttle, CDR Victoria Futch

3/c Matthew Lanzilotta, 3/c Jaeden Coons. 2024. Using Artificial Intelligence to Predict Tree Abundance in Support of Military Operational Planning in Forested Environments. Advisors: Dr. Lucy Vlietstra and Dr. Donna Selch

1/c Mikasa Lierman, 1/c Sadie Olson, 1/c Sarah Skurat, 1/c Cheyenne Waters. Chemical analysis of plastic particles in an estuary (Thames River, CT) and the digestive system of seabirds (Tasmania, Australia). Advisors: Dr. Karina Mrakovcich, Dr. Deanna Bergondo, LT Matthew Brigham

1/c Tyler Polon. Multi-dimensional Quantitative Analysis for Geographic Response Strategy Validation for Sector New York. Advisors: Dr. Deanna Bergondo, CDR Mike Persun

1/c James Schvaneveldt, 1/c Sarah Pearson, 1/c Katherine Jenkins, and 1/c Hanna Apelizan. Operation Blue Pacific. Advisors: Dr. Donna Selch, CDR Victoria Futch. Faculty-cadet collaboration highlighted talk

1/c Jake Thoenen. Projected Sea Level Rise and Flooding of Coastal Infrastructure at Four Major Arctic Maritime Ports. Advisor: Dr. Lucy Vlietstra

# Mathematics Department Scholarship, 2024

## Peer-reviewed Journal Articles

Kudlak, Z.A. and J.B. White. (2024) “The Effect of the COVID Disruption in 2020 on High School Learning and College Preparation: One College’s Experience” *Business Education Innovation Journal* (16) No 2: 13-19.

## Conference Presentations

Kudlak, Z. and J. Sherman. "Natural Language Processing-Informed Identification of Person in the Water Search and Rescue (PIW-SAR) Case Summaries,” 92nd Military Operations Research Society (MORS) Symposium, Naval Postgraduate School, Monterey, CA, June 2024.

Kudlak, Z. and J. Sherman. "Computer Vision in the Maritime Domain,” 92nd Military Operations Research Society (MORS) Symposium, Naval Postgraduate School, Monterey, CA, June 2024.

**Manuscript Reviews**

Frommer, I. (Referee), INFORMS Transactions on Education, Institute for Operations Research and the Management Sciences, 2024.

**Speaking Engagements (or invited lectures)**

Kudlak, Z. and J. Sherman. "Natural Language Processing-Informed Identification of Person in the Water Search and Rescue (PIW-SAR) Case Summaries,” Battles Lecture (Keynote Speakers), Mathematics Association of America Northeastern Section Spring Meeting, Norwich University, Northfield, VT, May 2024.

Bagchi Misra, Arundhati. “Ultrasound image denoising by faster nonlocal means”, Department of Mathematics Seminar series, Connecticut College, New London CT, February 2024

**Faculty Awards/Honors**

Kudlak, Z.A. 2024. Awarded Intergovernmental Personnel Act agreement with Massachusetts Institute of Technology – Lincoln Laboratory for research in applied machine learning, Lexington, Massachusetts.

**Scholarly Awards:**

Farlow, L., Herb, L., O’Brien, D. (2024). Hewitt Speech Competition ORDA Award Recipients, USCGA. Advisors: Dr. Zachary Kudlak and LT Justin Sherman.

**Cadet Projects, Capstones, and Senior Projects (please include Cadet Research Day in addition to presentations at conferences)**

Anthony, D., Barbalato, J., Becker, M. and Chapman, J. (2024). “USCGA Energy Dashboard.” Presented at the 2024 Service Academies Student Mathematics Conference and also at the 2024 USCGA Cadet Research Symposium. Advisors: PROF Eric C. Johnson and LCDR Margaret Harward.

Farlow, L., Herb, L., O’Brien, D. (2024). “Natural Language Processing to Triage Maritime Distress Signals.” Presented at the 2024 Service Academies Student Mathematics Conference, 2024 USCGA Cadet Research Symposium, and 2024 Warfighter Innovation in Science & Engineering (WISE) Challenge. Advisors: Dr. Zachary Kudlak and LT Justin Sherman.

Arpino, E, Disque, L., Inman, J. (2024). “Vessel Detection and Classification through Computer Vision to Aid Maritime Domain Awareness”. Presented at the 2024 Service Academies Student Mathematics Conference and at the 2024 USCGA Cadet Research Symposium. Advisor: Dr. Ian Frommer.

# Physics Department, 2024

## Peer Reviewed Articles

Rigby, F. E., L. P. Ciamarra, M. Holmberg, N. Madhusudhan, S. Constantinou, L. K. Schaefer, J. Deng, K. K. M. Lee, and J. I. Moses. (2024) “Towards a self-consistent evaluation of gas dwarf scenarios for temperate sub-Neptunes” Astrophysical Journal, 975(1), 101, doi: 10.3847/1538-4357/ad6c38

## Conference Presentations

Spears, D., K. K. M. Lee and R. Jeanloz. “Diamond formation in carbon-poor synthetic planetary ices.” AGU Annual Meeting, Washington, D. C. December 2024

Zhou, X. B. and K. K. M. Lee. “Importance of impurities in molybdenum melting at high pressures.” AGU Annual Meeting, Washington, D. C. December 2024.

## Invited Lecture

Lee, K. K. M. (2024, Oct 2) “The Earth from the inside out.” Virtual school visit. Hanahauoli School, Honolulu, HI.

## Cadet Projects

## Cadet Presentations

Keogh, G., “The influence of salinity on the formation of ice VI and VII,” capstone project with Lee, K. K. M., (2024).

2/c Nick Folkes, 2/c Sarah Hardy. Construction and Implementation of the USCGA Space Operations Center (1 of 2). Advisors: CAPT James, Prof Allen, Prof Freeman, Prof Burbank, Dr. Mehta

3/c Joe Reynolds, 3/c Jackson Burrows, 2/c Jonathan Barrett, 3/c Ethan Schroeder, Holden Hudson, 3/c Madeline Fontana. Construction and Implementation of the USCGA Space Operations Center (2 of 2). Advisors: CAPT James, Prof Allen, Prof Freeman, Prof Burbank, Dr. Mehta

# School of Management

# Management Department Scholarship, 2024

## Peer-reviewed Journal Articles

Imbriale, P., Stavrulaki, E., & Livingston, J. (2024). “Can Media reports encourage Donors to give cash instead of in-kind? Evidence from an experiment.” Journal of Behavioral and Experimental Economics, 110, 102206. https://doi.org/10.1016/j.socec.2024.102206

Jackson-Summers, A. G. (2024). A Qualitative Multi-Method Study of U.S. Banks’ Financial Reporting Addressing Security Risk Management (SRM) Operational Effectiveness and SRM Maturity, Journal of Management Policy and Practice, 25(2), 69-83.

Jackson-Summers, A. G., Mrakovcich, K. L., Gray, J. P., Fleischmann, C. M., Emami, T., & Page, E. J. (2024). A Systematic Review of Inclusive Pedagogical Research Using the CIRTL Inclusive Pedagogy Framework: Multi-Disciplinary and STEM Perspectives, Current Trends and A Research Agenda. Discover Education, 3(30), 1-25.

Pournader, M., A. Narayanan, M.F. Keblis and D. Ivanov. (2024), “Decision bias and bullwhip effect in multiechelon supply chains: risk preference models” IEEE Transactions on Engineering Management (71): 9229-9243.

## Conference Presentations

Elkhatib, D. and C. Fleischmann. “Ensuring Modern Standards are Met at Older Facilities – Two Case Studies” World Environmental & Water Resources Conference, Milwaukee, Wisconsin. May 2024.

Fetzer, G. T. & Jones, E. B. 2024. How Life Events Shape Meaningful Work. Presented at the Academy of Management Conference, Chicago, IL.

Imbriale, P., Stavrulaki, E., & Livingston, J. (2024). “Unintended Consequences of In-Kind Humanitarian Donations: The Problem of Material Convergence.” Presented at the Northeast Decision Sciences Institute 53rd Annual Conference, Cambridge, MA.

Jones. E. B. Can’t Have One Without the Others: The Role of Agency in Identity Work Spanning Multiple Identities. Presented in Agency in Identity Construction (N. S. Janardhanan, E. B. Jones & Vough, H. C., organizers). At the Academy of Management Conference, Chicago, IL. August 2024.

Jones, E. B. & Hymer, C. B. 2024. Follow Your Polar Star, Reboot, or Be a Nomad? Career Change Profiles in Pursuit of Meaningful Work. Presented at the Academy of Management Conference, Chicago, IL.

Jones, E. B., 2024. Against the Odds: The Role of Male Life Partners in Women’s Pursuit of and Investment in Careers. Presented at the Work and Family Researchers Network Conference, Montreal, ON.

McBride, T.M., Gailor, LCDR. E., Heller, J., & Morris, D. (2024). ‘Adopting U.S.

Guard Academy Methods for Teaching Leadership: A Collaboration Between Faculty at

the U.S. Coast Guard Academy, Norwich University, and Ferrum College’. Management & Organizational Behavior Teaching Society Conference, University of Queensland, January 14, 2024.

## Conference Proceedings

Fleischmann, C., H. Jackson, K. Tarhini and B. Maggi. “Pedagogical Changes to a Capstone Course to Foster Refinement of Professional Skills” American Society of Professional Engineers (ASEE) Conference Proceedings, Portland, Oregon, June 23, 2024.

Jackson-Summers, A. (2024). Inclusive Communication Toward a Sense of Belonging Using Pictorial Representation and Interpretive Analysis for Improved Management Information Systems Course Delivery, iCERi2024 Proceedings, pp. 753-758, 11-13NOV2024, Seville, (Spain). Virtual. https://library.iated.org/publications/ICERI2024

## Speaking Engagements (or invited lectures)

Bellissimo, M. (2024, Jan 29.) “Reliability and Resilience at US Hospitals During the Global COVID-19 Pandemic: A Mixed Methods Case Study on the Effect of Leader and Team Behavior on Crisis Response.” Faculty Research Forum (FRF) Luncheon Series, U.S. Coast Guard Academy, New London, CT.

Bellissimo, M. (2024, Feb.) “Getting Published: Tips and Techniques for Turning Your Dissertation into a Textbook.” New York University Stern School of Business, PhD Symposium.

Bellissimo, M. (2024, Mar.) “Securing an Academic Position- Post PhD.” Case Western Reserve University Weatherhead School of Management, PhD Symposium.

Jackson-Summers, A. (2024). Inclusive Communication Toward a Sense of Belonging Using Pictorial Representation and Interpretive Analysis for Improved Management Information Systems Course Delivery, 17th Annual International Conference of Education, Research and Innovation (iCERi2024), 11-13NOV2024, Seville, (Spain). Virtual.

Jones, E. & Imbriale, P. (2024). “Factors motivating Coast Guard members’ continued service and their relationship with length of service.” Faculty Research Forum (FRF) Luncheon Series, U.S. Coast Guard Academy, New London, CT.

## Cadet Projects, Capstones, and Senior Projects

Bass, A. K., Carmen, D. T., Fenn, T. R., & Guidry, A. M. (2024). “Swab Summer Day One.” Presented at the 2024 Annual Cadet Research Symposium. Advisor: LCDR Peter Imbriale, Ph.D.

Bulger, K. M., Daughtry, D. P., & Mika, L. R. (2024). “Analyzing and Optimizing Operations at the Academy Clinic.” Presented at the 2024 Annual Cadet Research Symposium. Advisors: LCDR Nick Martin.

Caskey, N. A., Carroll, J. A., Nelson, E. L., & Matamoros-Flores, H. (2024). “2024 Social Enterprise Capstone Team: Nutrition for Vets.” Presented at the 2024 Annual Cadet Research Symposium. Advisor: Dr. Michael Bellissimo.

Fatula, K. G., Frizzell, J. R., & Riozzi-Bodine, C. J. (2024). “Optimizing Coast Guard Recruiting Command’s Recruiting Footprint.” Presented at the 2024 Annual Cadet Research Symposium. Advisors: Dr. Ian Frommer and LCDR Ed Gailor.

Gonzales, G. S., Liano-Mock, C. E., & Tran, D. T. (2024). “2024 Social Enterprise Capstone Team: Foster Mentoring.” Presented at the 2024 Annual Cadet Research Symposium. Advisor: Dr. Michael Bellissimo.

Hegbli, Z. E., Lough, R. D., McPherson, R. K., & Woodworth, D. L. (2024). “Base Boston: Revolutionizing Mission Support through Aggregated Procurement and Warehousing to Enable ‘Ask and Get Convenience’ for Operators.” Presented at the 2024 Annual Cadet Research Symposium. Advisors: LCDR Nick Martin and LCDR Nick Winiarski.

Lubin, M. F., Martin, J. G., & Whalen, E. C. (2024). “USAA Educational Foundation Capstone: Exploring Effective Learning Strategies for Financial Literacy Education.” Presented at the 2024 Annual Cadet Research Symposium. Advisor: CAPT Anna Hickey.

Parker, A. D., Lee, J. H., & Purvis, M. D. (2024). “Chase Hall Cultural Fluency Consulting.” Presented at the 2024 Annual Cadet Research Symposium. Advisors: LCDR Chris Shih.

Radka, D. D., Mattingly, B. J., Lange, N. A., & Loveless, C. M. (2024). “Base Boston: Reimagining Coast Guard Contingency Planning & Resource Management with No-Code Solutions.” Presented at the 2024 Annual Cadet Research Symposium. Advisor: Chris Shih.

Samples, B. W., Wood, K. S., & Possamai, L. B. (2024). “2024 Social Enterprise Capstone Team: Care for the Homeless.” Presented at the 2024 Annual Cadet Research Symposium. Advisor: Dr. Michael Bellissimo.

Vecchio, J. T., Feely, P. I., Rumpf, W. J., & He, K. G. (2024). “CG Base Boston: EZ-Supply Inventory Management.” Presented at the 2024 Annual Cadet Research Symposium. Advisor: Dr. Matthew Keblis.