

**Agendum  
Oakland University  
Board of Trustees Formal Session  
February 7, 2025**

**ACCEPTANCE OF GRANTS AND CONTRACTS TO OAKLAND UNIVERSITY  
FOR THE PERIOD OF SEPTEMBER 1 – DECEMBER 31, 2024**  
**A Recommendation**

1. **Division and Department:** Academic Affairs/Research Office

2. **Introduction:** Oakland University contributes to our national agenda as a contributor to the nation's scientific and technological progress, both through the generation of new knowledge and ideas and the education and training of its students. Grants and contracts awarded to Oakland University play a critical role in the advancement of new research findings, and current research trends gives emphasis to inter-disciplinary, technology-driven, and product-oriented team efforts.

The Board of Trustees (Board) has authorized the President, or his or her designee, to receive and acknowledge grants and contracts to the University, but such grants and contracts must be reported to the Board not less often than quarterly for acceptance on behalf of the University.

At this time, we request that the Board accept the grants and contracts reported on the attached Grants and Contracts Report, Attachment A, for the period of September 1 – December 31, 2024

3. **Previous Board Action:** The Board accepts grants and contracts to Oakland University on a regular basis at its Formal Sessions.

4. **Budget Implications:** Grants and contracts contribute to the University through the recovery of direct and indirect expenses incurred in support of research projects.

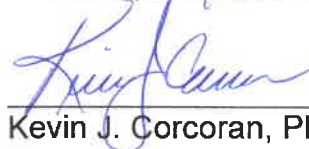
5. **Educational Implications:** Grants and contracts enhance the training and education of students.

6. **Personnel Implications:** Grants and contracts awards may provide salary support for faculty, post-doctoral fellows, undergraduate and graduate students, technicians, lab managers, and other personnel, as required by the funded research project or program.

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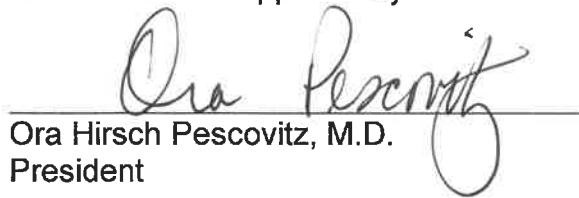
7. **University Reviews/Approvals:** All grants and contracts are reviewed by the Research Office prior to submission to the Board to ensure compliance with federal and state laws and regulations and University policies and procedures, when applicable, and with assistance from the Office of Legal Affairs when requested.
8. **Recommendation:** RESOLVED, that the Board of Trustees accept grants and contracts to Oakland University identified in the attached Grants and Contracts Report, Attachment A, for the period of September 1 – December 31, 2024.
9. **Attachments:** A. Grants and Contracts Report.

Submitted to the President  
on 1/28/25, 2025 by



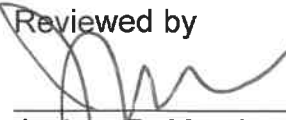
Kevin J. Corcoran, Ph.D.  
Interim Executive Vice President  
for Academic Affairs and Provost

Recommended on 1/30, 2025  
to the Board for approval by



Ora Hirsch Pescovitz, M.D.  
President

Reviewed by



Joshua D. Merchant, Ph.D.  
Chief of Staff and  
Secretary to the Board of Trustees

## Grants and Contracts Report for Period: September 1 - December 31, 2024

| Principal Investigator                                              | Awarding Agency                                                               | Title and Project Abstract                                                                                                                                                                                                                                                                                                                                                                                                         | Award Amount | Total Award All Years |
|---------------------------------------------------------------------|-------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-----------------------|
| Jillian Gust<br>Meadow Brook Estate                                 | National Park Service                                                         | <b>Meadow Brook Hall Window and Stained Glass Restoration Project.</b> This project will greatly improve the care and management of thousands of Meadow Brook Hall's historic objects including rare, irreplaceable art, textiles, furnishings as well as the interior woodwork and building materials.                                                                                                                            | \$264,005    | \$264,005             |
|                                                                     |                                                                               | <b>Optimizing Dimensions of Reinforcement to Enhance Behavioral Interventions.</b> Over two million people in the United States with intellectual and developmental disabilities engage in some form of severe problem behavior, e.g. self-injury and aggression. This project will research identifying effective reinforcers that increase appropriate behavior and maintain low levels of severe problem behavior.              | \$87,199     | \$177,111             |
| Michael Kranak<br>Department of Human Development and Child Studies | Auburn University / National Institutes of Health                             |                                                                                                                                                                                                                                                                                                                                                                                                                                    |              |                       |
| Michael Kranak<br>Department of Human Development and Child Studies | National Institutes of Health                                                 | <b>Using Behavioral Economics to Mitigate Relapse of Problem Behavior in an Intellectual and Developmental Disabilities Population.</b> This project's goal is the development and validation of new forms of treatment that will improve the lives of individuals with intellectual and developmental disorders within community settings (such as the individual's home or school) by caregivers who are not trained therapists. | \$425,955    | \$425,955             |
|                                                                     |                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                    |              |                       |
| Luis Villa Diaz<br>Department of Biological Studies                 | Michigan Technological University / Michigan Economic Development Corporation | <b>Chemical and Customer-Based Optimization of Bioengineered Substrates for Stem Cell Culture.</b> This project aims to improve proprietary technology to expand human pluripotent stem cells based on customer inputs.                                                                                                                                                                                                            | \$45,455     | \$45,455              |

| Principal Investigator                                             | Awarding Agency                                           | Title and Project Abstract                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Award Amount | Total Award All Years |
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| Mohamed Al-Shabrawey<br>Department of Foundational Medical Studies | National Institutes of Health                             | <b>Bone Morphogenetic Proteins 2 and 4 and Activin Receptor-Like-Kinases Signaling Systems in Diabetic Retinopathy.</b> This project offers the potential to introduce a novel strategy that could use bone morphogenetic proteins 2 and 4 signaling system inhibitors to impede the progression of diabetic retinopathy and the onset of retinal neovascularization, aligning with objectives outlined by the National Eye Institute.                                             | \$184,117    | \$375,060             |
| Felicita Arzu-Carmichael<br>Department of Writing and Rhetoric     | National Council of Teachers of English                   | <b>An Investigation of First-Year Composition Instruction in Two-Year Colleges in Belize, Central America.</b> This project will explore how instructors understand and teach first-year composition and how this understanding shapes their teacher identity.                                                                                                                                                                                                                     | \$2,850      | \$2,850               |
| Lisa Hawley<br>Department of Counseling                            | Substance Abuse and Mental Health Services Administration | <b>Oakland University Early Alert and Suicide Assessment Education Program.</b> The goal of this project is to increase the number of highly trained students in Counseling and Social Work to provide high-impact mental health education and suicide prevention for campus and the community. Another objective is to develop educational delivery methods that adapt to the changing needs of emerging adults and are embedded with diversity, equity and inclusion principles. | \$100,181    | \$303,983             |
| Kwame Sakyi<br>Department of Public and Environmental Wellness     | National Institutes of Health                             | <b>A Multi-Method, Multi-Domain Approach to Evaluating Preterm's Effect on Child Growth and Development.</b> This project seeks to provide a clearer, simultaneous picture of individual, family and community factors by identifying patterns and pathways of influence, clinical profiles of babies at-risk for poor growth and development, and caregiver-driven strategies that promote child growth and development.                                                          | \$373,358    | \$373,358             |

| Principal Investigator                                              | Awarding Agency               | Title and Project Abstract                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Award Amount | Total Award All Years |
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| <b>Gerard Madlambayan</b><br>Department of Biological Sciences      | National Institutes of Health | <b>The Role of Hematopoietic Stem and Progenitor Cells in Solid Tumor Growth and Response to Radiation Therapy.</b> This research project will elucidate how hematopoietic stem and progenitor cells are maintained in tumors and identify the role they play in tumor progression and response to therapy. The long-term goals are to use findings to develop novel treatment strategies that overcome the pro-tumor effects of these stem cells resulting in better patient outcomes.                                                                                                         | \$71,873     | \$521,668             |
| <b>Huirong Fu</b><br>Department of Computer Science and Engineering | National Security Agency      | <b>National Security Agency: National Centers of Academic Excellence in Cybersecurity Center-2024.</b> Six institutions, located in Michigan, Delaware, Massachusetts, and Ohio, will develop and offer nationally relevant and vital training programs through in-person, online, and hybrid modalities addressing comprehensive upskilling and reskilling opportunities tailored for automotive engineers, cybersecurity and artificial intelligence professionals, military and civilian defense personnel, information technology professionals, educators, students, and department heads. | \$2,500,000  | \$3,497,947           |
| <b>Sayed Nassar</b><br>Department of Mechanical Engineering         | National Science Foundation   | <b>Industry-University Cooperative Research Center Phase I Oakland University: Center for Composite and Hybrid Materials Interfacing.</b> This funding will be used to support a membership, whose projects will be determined at the next Industry Advisory Board Meeting.                                                                                                                                                                                                                                                                                                                     | \$88,667     | \$730,000             |

| Principal Investigator                                                         | Awarding Agency                                            | Title and Project Abstract                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Award Amount | Total Award All Years |
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| <b>Christopher Cooley</b><br>Department of Mechanical Engineering              | Army Research Laboratory                                   | <b>Damage-Induced Nonlinear Dynamics of Rotorcraft Planetary Gears.</b> Fundamental understanding of the impact of gear tooth damage on dynamic mesh forces and how those forces create and transmit vibration is needed. This project will create a new predictive analytical framework for nonlinear dynamics in planetary gears with tooth root crack and surface pit damage.                                                                                                                                   | \$74,400     | \$195,351             |
| <b>Tomoko Wakabayashi</b><br>Department of Human Development and Child Studies | Michigan Association of Intermediate School Administrators | <b>Evaluation of the Coaching Practices for Early Literacy Training.</b> This evaluation will examine the impact of the training on all coach trainees, and will provide rich descriptions of the fifteen subgroup trainees and classroom teachers coached by them.                                                                                                                                                                                                                                                | \$18,142     | \$18,142              |
| <b>Alycen Wiacek</b><br>Department of Electrical and Computer Engineering      | National Institutes of Health                              | <b>Non-Invasive Diagnostic Tools to Characterize Blood Clot Microstructure.</b> The development of non-invasive diagnostic tools to characterize blood clot microstructure is critical to the selection of proper treatment and clinical pathways for many cardiovascular diseases, including stroke, ischemic heart disease, and venous thromboembolism. This project will ultimately lead to targeted thrombosis treatment, resulting in faster determination of a treatment path and improved patient outcomes. | \$341,598    | \$341,598             |
| <b>Vandre Figueiredo</b><br>Department of Biological Sciences                  | National Institutes of Health                              | <b>Reverse Engineering Cancer Cachexia: Muscle Ribosome Biogenesis in the Etiology of Cachexia.</b> Skeletal muscle mass loss during cancer cachexia is one of the most important predictors of poor prognosis and mortality among cancer patients. While there has been great attention recently to the roles of muscle ribosome biogenesis in regulating muscle hypertrophy, the roles of muscle ribosome biogenesis during muscle atrophy are largely unknown. This project aims to change that.                | \$200,358    | \$629,406             |

| Principal Investigator                                                       | Awarding Agency                                                                       | Title and Project Abstract                                                                                                                                                                                                                                                                                                                                                                                                             | Award Amount | Total Award All Years |
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| <b>Kristine Thompson</b><br>Department of Human Movement Science             | American Physical Therapy Association / Michigan Institute for Education and Research | <b>The Impact of Mentoring and Other Support Relationships in the Recruitment, Retention, Professional Development, and Graduation of Black Students of Entry-Level Physical Therapy Program.</b><br>The purpose of this study is to examine what impact mentoring and support relationships have on the recruitment, retention, professional development, and graduation of black students in entry level physical therapy programs.  | \$1,000      | \$1,000               |
| <b>Jennifer Lucarelli</b><br>Department of Interdisciplinary Health Sciences | Ascension Michigan                                                                    | <b>Community Health Needs Assessment Primary Data Collection Southeast Michigan Region.</b> This project will develop a data collection plan and analysis involving focus groups/community forums, interviews, and surveys to determine the top significant issues most impacting the community served by six of Ascension Detroit Area hospitals.                                                                                     | \$59,844     | \$59,844              |
| <b>Ziming Yang</b><br>Department of Chemistry                                | National Science Foundation                                                           | <b>Mechanistic Understanding of Organic Carbon and Nitrogen Transformations in Deep Ocean Hydrothermal Systems.</b> This project will identify the hydrothermal chemistry and pathways of organic C and N, which is vital for understanding the inputs and outputs of subsurface organic inventory, uncovering food and energy sources in deep ocean ecosystems, and predicting future C and N emissions from the oceanic lithosphere. | \$62,951     | \$592,632             |

| Principal Investigator                                                 | Awarding Agency                                                       | Title and Project Abstract                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Award Amount | Total Award All Years |
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| <b>David Szlag</b><br>Department of Chemistry                          | Michigan Department of Health and Human Services                      | <b>SEWER Network Project 2025.</b> The goal of this research is to continue our existing actionable wastewater surveillance program at two universities including residential halls, apartments, and campus surveillance points over the next four semesters.                                                                                                                                                                                                                                                                                                                                                              | \$799,439    | \$3,997,687           |
| <b>Hongwei Qu</b><br>Department of Electrical and Computer Engineering | University of Missouri / Department of Energy                         | <b>Development of Hydrogen Sensing Tool.</b> This project will develop a miniaturized, low-cost, hand-held, flexible-use hydrogen sensing system and validate the system's measurement accuracy for use in hydrogen safety applications.                                                                                                                                                                                                                                                                                                                                                                                   | \$199,547    | \$199,547             |
| <b>Anyi Liu</b><br>Department of Computer Science and Engineering      | Michigan State University / Michigan Economic Development Corporation | <b>Enhancing Artificial Intelligence Accountability and Security in Industrial Autonomous Systems through Advanced Forensics.</b> Our framework will use forensic capabilities that introspect data communications between artificial intelligence models/large language models and intelligent agents, enabling real-time monitoring, analysis, and auditing of artificial intelligence model inputs, communications, and decision-making processes. This project's approach overcomes critical limitations in conventional systems, advancing the technical feasibility of secure and trustworthy autonomous operations. | \$20,000     | \$20,000              |
| <b>Gregory Patterson</b><br>Department of Dance                        | Michigan Arts and Cultural Council                                    | <b>Eisenhower Dance Detroit Residency at Oakland University.</b> Through this collaboration, Oakland University students will work with our region's leading dance company and receive a professional level piece of repertory to perform. Students will be exposed to the inner workings of a professional dance company, providing them with mentorship, collaborative experiences, and useful insights into the world of professional dance.                                                                                                                                                                            | \$12,000     | \$20,000              |



| Principal Investigator                                      | Awarding Agency                                                     | Title and Project Abstract                                                                                                                                                                                                                                                                                                                                                                                | Award Amount | Total Award All Years |
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| <b>Nicole Wagner</b><br>Department of Biological Sciences   | Michigan Technological University / Michigan Sea Grant              | <b>An Ecosystem-Scale Approach to Understanding Changing Winters in the Great Lakes.</b> This research will integrate physical, chemical and biological observations with targeted experiments to understand differences in limnological function across disparate regions of the Great Lakes.                                                                                                            | \$6,219      | \$7,209               |
| <b>Sayed Nassar</b><br>Department of Mechanical Engineering | Georgia Tech Research Corporation / Georgia Institute of Technology | <b>Industry-University Cooperative Research Center Program.</b> The Industry-University Cooperative Research Center Program will involve interdisciplinary teams to address the emerging need to transform current labor-intensive, experience-based Composite and Hybrid Materials Interfacing practices into science-based, automated Composite and Hybrid Materials Interfacing processes.             | \$125,806    | \$362,951             |
| <b>Dawn Aubry</b><br>Department of Enrollment Management    | State of Michigan                                                   | <b>Student Success Consortium - College Success Grant.</b> This Go Big project will establish a collaborative project to construct redesigned student support systems at scale at Oakland University and Mott Community College to increase degree completion rates.                                                                                                                                      | \$482,000    | \$482,000             |
| <b>Gopalan Srinivasan</b><br>Department of Physics          | ARCTOS / Air Force Office of Scientific Research                    | <b>Engineered Ferrimagnetic Films via Liquid Phase Epitaxy and Sputtering.</b> This research objective is to prepare thin films of magnetic oxides on a variety of substrates in order to study the influence of substrate induced mechanical strain on magnetic properties of the films. It is anticipated that the efforts will lead to new film-substrate combinations for useful device technologies. | \$150,000    | \$150,000             |

| Principal Investigator                                                                       | Awarding Agency                              | Title and Project Abstract                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Award Amount | Total Award All Years |
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| <b>Ali Ahmad Malik</b><br>Department of Industrial and Systems Engineering                   | United States Council on Automotive Research | <b>General Motors-Digital Twins: Modeling Standards of Component-, Machine-, and System-Level Digital Twins in Manufacturing for Full Stack Virtual Commissioning.</b> Virtual commissioning requires various virtual models to simulate and emulate physical systems. Virtual commissioning expedites the construction and validation of a manufacturing system by preempting integration issues in the physical system. However, the current process of developing high-fidelity virtual models and using them to troubleshoot manufacturing systems through virtual commissioning is often time-consuming and procedurally expensive. The standardization of virtual models can transform this process, making it more efficient and cost-effective. This project will standardize some of those virtual models. | \$200,000    | \$200,000             |
| <b>Wayne Thibodeau</b><br>Career and Life Design Center                                      | Michigan Economic Development Corporation    | <b>Science, Technology, Engineering, Art and Math Program - Oakland University.</b> This project aims to foster meaningful, hands-on career experiences for students interested in science, technology, engineering, art and math-related positions and to support companies in Michigan - of all sizes - with building their talent pipeline.                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | \$22,400     | \$22,400              |
| <b>Maria Beam</b><br>Department of Sociology, Anthropology, Social Work and Criminal Justice | Michigan Department of Education             | <b>Advancing School Social Work through Enhanced Training and Stipends in Southeast Michigan.</b> This project is a strategic initiative by Oakland University's Social Work Program in collaboration with local public schools and supported by the State of Michigan's Department of Education. This initiative is designed to leverage the newly available SMART program funding to increase the training and readiness of MSW students focusing on K-12 educational settings.                                                                                                                                                                                                                                                                                                                                   | \$122,000    | \$350,750             |

| Principal Investigator                                                      | Awarding Agency             | Title and Project Abstract                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Award Amount       | Total Award All Years |
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| <b>Richard Olawoyin</b><br>Department of Industrial and Systems Engineering | National Science Foundation | <b>ADVANCE - BELONG: (Building Equity, Leadership, and Opportunities for a New Generation) Summit.</b><br>Supplemental funding was awarded to support a series of online virtual meetings and two in-person summit meetings to foster intersectional gender equity, diverse, and inclusive environments within engineering academic programs.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | \$21,073           | \$172,051             |
| <b>James Naus</b><br>Department of History                                  | Michigan Humanities Council | <b>History Comes Alive.</b> This project will emphasize collaboration among cultural, educational, and community-based organizations and institutions in order to serve Michigan's people with public humanities programming.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | \$8,925            | \$8,925               |
| <b>Jun Chen</b><br>Department of Electrical and Computer Engineering        | National Science Foundation | <b>Sensor-lean Estimation and Monitoring for Second Life EV Batteries.</b> It is estimated that by 2040 there could be over 3.4 million kg of used lithium-ion electric vehicle (EV) batteries, posing significant environmental concerns due to the use of rare earth elements and the large carbon footprint during EV battery manufacturing. It has been proposed that retired EV batteries are tested and repurposed for stationary applications, "second life EV batteries". However, existing approaches on battery cell parameter and state estimation generally require extensive testing of each individual cell, which may not scale up for the large number of retired EV batteries. To address these issues, this project will develop a sensor-lean and computation-efficient estimation and monitoring framework for second life EV batteries. | \$320,000          | \$320,000             |
| <b>Total Awarded</b>                                                        |                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>\$7,391,362</b> | <b>\$14,868,885</b>   |