

# Board of Curators Meeting - Public Session

University of Missouri System

Student Union, Multipurpose Room 401, University of Missouri - Kansas City

Sep 7, 2023 8:30 AM - 12:15 PM CDT

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## Vision

To advance the opportunities for success and well-being for Missouri, our nation and the world through transformative teaching, research, innovation, engagement and inclusion.

## Mission

To achieve excellence in the discovery, dissemination, preservation and application of knowledge. With an unwavering commitment to academic freedom and freedom of expression, the university educates students to become leaders, promotes lifelong learning by Missouri's citizens, fosters meaningful research and creative works, and serves as a catalyst for innovation, thereby advancing the educational, health, cultural, social and economic interests to benefit the people of Missouri, the nation, and the world.

## Missouri Compacts for Achieving Excellence

The Missouri Compacts for Achieving Excellence provide unifying principles that inform and guide the four universities and their strategic plans. Learn more about the compacts, below, at <http://umurl.us/prespri>.



Excellence in Student Success



Excellence in Research and Creative Works



Excellence in Engagement and Outreach



Inclusive Excellence



Excellence in Planning, Operations and Stewardship

## Core Values

Our institution collectively embraces a series of core values that serve as the foundation upon which we build new knowledge and provide outstanding programs for students and citizens of our state and beyond.



- Academic freedom
- Access
- Accountability
- Civility
- Collaboration
- Creativity
- Discovery
- Engagement
- Excellence
- Freedom of expression
- Inclusion
- Innovation
- Integrity
- Respect
- Responsibility
- Transparency

## Guiding Principles

1. Support courageous and proactive leadership that is articulate, unified and committed to excellence in carrying out our existing core missions of teaching, research, engagement and economic development and in meeting the changing needs of the world and the state.
2. Establish a collaborative environment in which UM System universities work together to achieve collective results that cannot be achieved individually and are committed to each other and our mutual success.
3. Exercise central authority that recognizes and respects institutional distinctiveness, appropriate deference and accountability.
4. Enact informed decisions based on collaboratively developed strategic directions and planning.
5. Identify and promote systemwide core values, including respect for all people, transparency, accountability, stewardship and purposeful self-assessment of performance.

## Collected Rules and Regulations 10.025

### Statement of Values

Approved Board Minutes: 11-17-2022.

- A. The Board of Curators of the University of Missouri establish the following statement of values to guide members in the governance of the University of Missouri pursuant to the Constitution and the Revised Statues of the State of Missouri:
1. **Trustworthy & Transparent Communication.** We value an environment of openness, collaboration and honesty with each other above all else, and support open communication and the free expression of ideas. We will endeavor to communicate with each other and with all University stakeholders with honesty and integrity. We will perform our duties ethically and avoid conflicts of interest.
  2. **Respect.** We are respectful of each other and all University stakeholders in our interactions. We believe that civility, courtesy, decency and tolerance are critical when engaging in discussions with others with whom we may not agree. We encourage independent judgment and the sharing of a diversity of thoughts, and accept others' unique perspectives as valuable contributions to governing discussions.
  3. **Healthy Board Governance.** We are committed to a healthy culture of board governance, one that is dedicated to sustaining the trust and support for the University of Missouri. We will devote time and effort needed to responsibly and capably perform our duties. We will exercise responsible stewardship and uphold our fiduciary duties as Curators. We will fully prepare for, attend and participate in board meetings, and seek to continually increase our understanding of, and adherence to, the standards for effective board governance.
  4. **Support and Hold Accountable Leadership.** We are committed to supporting the leadership throughout the University of Missouri, while also holding that leadership accountable for the effective management of the University. We will establish, communicate and monitor clear performance expectations for leadership directly reporting to the Board, and will hold such leadership accountable to maintain the highest standard of ethical behavior. In supporting University leadership, we will endeavor to avoid involvement in matters delegated to the Administration.
  5. **Strategic Vision.** We are committed to fully understanding, supporting and, when appropriate, challenging the short and long-term strategic priorities of the University of Missouri's constituents. We will challenge University leadership to continually develop and assess strategic plans that will be effective in supporting the Missouri Compacts for Achieving Excellence: Excellence in Student Success, Excellence in Research and Creative Works, Excellence in Engagement and Outreach, Inclusive Excellence and Excellence in Operations, Planning and Stewardship.

UNIVERSITY OF MISSOURI  
BOARD CHAIR REPORT

There are no materials for this information item.

UNIVERSITY OF MISSOURI  
PRESIDENT'S REPORT

Materials for this information item will be  
distributed prior to the meeting.

## REVIEW CONSENT AGENDA

There are no materials for this information item.



Consent A

Recommended Action - Minutes, June 29, 2023 Board of Curators Meeting

It was moved by Curator \_\_\_\_\_ and seconded by Curator \_\_\_\_\_, that the minutes of the June 29, 2023 Board of Curators meeting be approved as presented.

Roll call vote:	YES	NO
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Curator Blitz

Curator Brncic

Curator Fry

Curator Graves

Curator Holloway

Curator Layman

Curator Sinquefield

Curator Wenneker

Curator Williams

The motion \_\_\_\_\_.

September 7, 2023

Consent B

Recommended Action - Minutes, June 29, 2023 Board of Curators Committee Meetings

It was moved by Curator \_\_\_\_\_ and seconded by Curator \_\_\_\_\_, that the minutes of the June 29, 2023 Board of Curators committee meetings be approved as presented.

Roll call vote: YES NO

- Curator Blitz
- Curator Brncic
- Curator Fry
- Curator Graves
- Curator Holloway
- Curator Layman
- Curator Sinquefield
- Curator Wenneker
- Curator Williams

The motion \_\_\_\_\_.

September 7, 2023

Consent C

Recommended Action - Minutes, July 10, 2023 Board of Curators Special Meeting

It was moved by Curator \_\_\_\_\_ and seconded by Curator \_\_\_\_\_, that the minutes of the July 10, 2023 Board of Curators special meeting be approved as presented.

Roll call vote:	YES	NO
-----------------	-----	----

- Curator Blitz
- Curator Brncic
- Curator Fry
- Curator Graves
- Curator Holloway
- Curator Layman
- Curator Sinquefield
- Curator Wenneker
- Curator Williams

The motion \_\_\_\_\_.

September 7, 2023

Consent D

Recommended Action - Minutes, August 1, 2023 Board of Curators Special Meeting

It was moved by Curator \_\_\_\_\_ and seconded by Curator \_\_\_\_\_, that the minutes of the August 1, 2023 Board of Curators special meeting be approved as presented.

Roll call vote:	YES	NO
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- Curator Blitz
- Curator Brncic
- Curator Fry
- Curator Graves
- Curator Holloway
- Curator Layman
- Curator Sinquefield
- Curator Wenneker
- Curator Williams

The motion \_\_\_\_\_.

September 7, 2023

Consent E

Recommended Action - Minutes, August 13, 2023 Board of Curators Special Meeting

It was moved by Curator \_\_\_\_\_ and seconded by Curator \_\_\_\_\_, that the minutes of the August 13, 2023 Board of Curators special meeting be approved as presented.

Roll call vote: YES NO

- Curator Blitz
- Curator Brncic
- Curator Fry
- Curator Graves
- Curator Holloway
- Curator Layman
- Curator Sinquefield
- Curator Wenneker
- Curator Williams

The motion \_\_\_\_\_.

September 7, 2023

Consent F

Recommended Action – Approval of Degrees, Fall Semester 2023, for all universities

It was recommended by the Chancellors, endorsed by President of the University of Missouri Mun Y. Choi, recommended by the Academic, Student Affairs and Research & Economic Development Committee, moved by Curator \_\_\_\_\_, seconded by Curator \_\_\_\_\_ that the following action be approved:

that the action of the President of the University of Missouri in awarding degrees and certificates to candidates recommended by the various faculties and committees of the four University of Missouri System campuses who fulfill the requirements for such degrees and certificates at the end of the Fall Semester 2023, shall be approved, and that the lists of said students who have been awarded degrees and certificates be included in the records of the meeting.

Roll call vote of Board:

YES

NO

Curator Blitz

Curator Brncic

Curator Fry

Curator Graves

Curator Holloway

Curator Layman

Curator Sinquefield

Curator Wenneker

Curator Williams

The motion\_\_\_\_\_.

Investment Consultant Annual Approval  
UM

Management is recommending the retention of Verus for Board of Curators approval. Verus, a fiduciary to the Board, provides general investment consulting services for the University's \$11 billion in assets under management across the Retirement Plan, Endowment Pool, and General Pool.

In 2018, after a formal RFP process, the Board of Curators retained Verus as the general investment consultant. As has been past practice, the Board of Curators approves the appointment of the general investment consultant on an annual basis. The proposed fee for the upcoming year beginning on October 1, 2023, is \$618,834. This represents a fee increase of \$4,291. The fee increase is from the annual inflation adjustment tied to CPI and capped at 2%.

Separately, the University's Investment Oversight Committee for Participant Directed Savings Plans selected Verus to provide investment consulting services for the University's Participant Directed Savings Plans as allowed by CRR 140.030 "Investment Policy for Participant Directed Savings Plans." The annual fee for these services is \$70,000, which is consistent with what had been paid to the previous provider of consulting services. The scope of the existing investment consulting agreement with Verus has been expanded to include these services.

An overview of Verus is attached for your review.

No. G

Recommended Action - Investment Consultant Annual Approval, UM

It was recommended by Executive Vice President Rapp, endorsed by President Choi, recommended by the Finance Committee, moved by Curator \_\_\_\_\_ and seconded by Curator \_\_\_\_\_, that the investment consulting firm, Verus, be retained for one year:

Roll call vote of the Committee: YES NO

Curator Fry  
Curator Graves  
Curator Layman  
Curator Wenneker

The motion \_\_\_\_\_.

Roll call vote of The Board of Curators: YES NO

Curator Blitz  
Curator Brncic  
Curator Fry  
Curator Graves  
Curator Holloway  
Curator Layman  
Curator Sinquefield  
Curator Wenneker  
Curator Williams

The motion \_\_\_\_\_.



**PERSPECTIVES  
THAT DRIVE  
ENTERPRISE  
SUCCESS**

**AUGUST 2023**

**Verus Overview**

**VERUSINVESTMENTS.COM**

**SEATTLE 206-622-3700**

**CHICAGO 312-815-5228**

**LOS ANGELES 310-297-1777**

**SAN FRANCISCO 415-362-3484**

**PITTSBURGH 412-784-6678**

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## Firm Background

Verus was established in 1986 to provide independent consulting services to institutional investors. With offices in Seattle, Los Angeles, San Francisco and Pittsburgh, our professionals advise over \$742 billion in client assets for 153 clients. The firm has 35 shareholders and employs 95 people, 83 of whom are investment professionals. Our clients include corporate retirement plans, universities, endowment and foundations, public retirement plans, multi-employer pension and welfare funds, and private wealth trusts.

Our core competencies follow a clear and consistent approach, and offer research-driven solutions that enable our clients to prudently discharge their fiduciary responsibilities:

- Thoughtful strategic asset allocation based on your enterprise objectives and risk tolerance, viewed through multi-faceted risk and scenario analytics.
- Effective and efficient implementation, combining best-in-class investment managers, low-cost passive exposures, and appropriate operations.
- Comprehensive asset class research coverage across traditional and alternative investments.
- Ability to identify and capture attractive valuation-based market opportunities.
- Application of risk management best practices across the portfolio to maximize risk-adjusted return.
- Customized reporting that ties investment results to selected milestones in order to better represent true progress.
- Proactive communication and educating clients about the economy, markets, and portfolio construction are key components of our service.

Since our last reporting, we have added seven new shareholders as part of our effort to broaden the breadth of ownership among our key employees. We will continue to focus on pursuing a client-centric approach to consulting and strengthening the depth and breadth of the research teams that will be made available to our clients.

## Resources

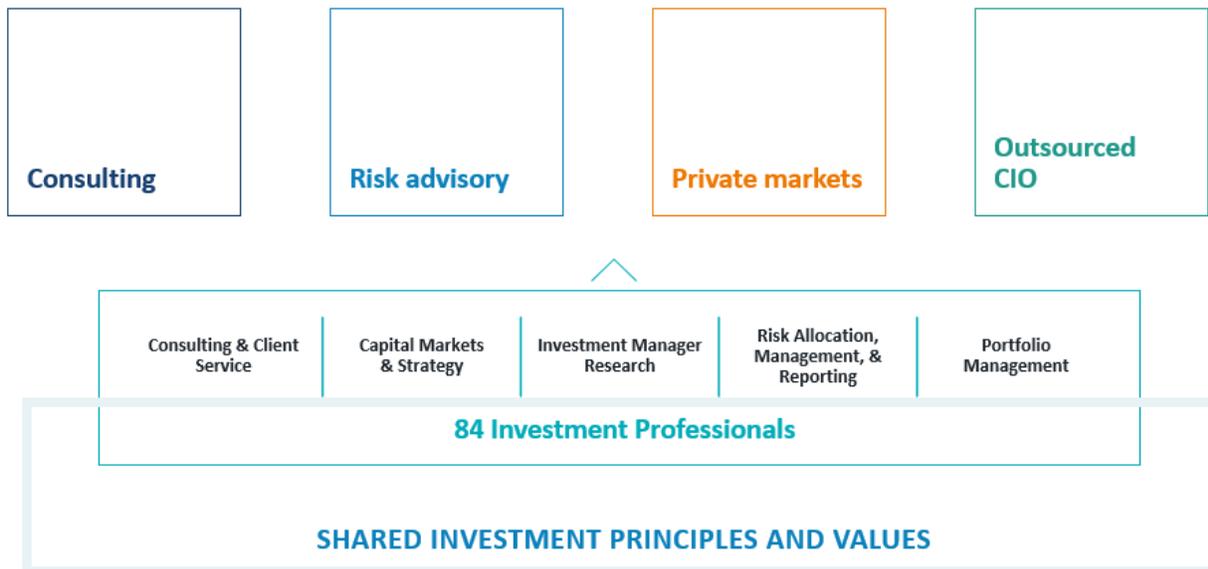
Functional Group	Number	Avg Years Firm	Avg Years Industry
Consultants	30	12	22
Consulting Associates	7	2	8
Manager Research	17	6	14
Strategic Research	4	6	12
Risk Advisory & Portfolio Management	4	2	10
Performance Analytics	15	5	8
Legal and Operations	4	9	24
Administration	7	10	13
Marketing	4	12	18
IT and Systems Development	3	15	20
<b>Total</b>	<b>95</b>	<b>8</b>	<b>15</b>

We currently employ the following software and databases in aid of our consulting practice:

- eVestment
- MPI
- MSCI BarraOne
- Winklevoss ProVal
- Morningstar Direct
- Aksia
- Pitchbook
- Cambridge Associates
- Thomson One VentureXpert
- Private Informant
- Investment Metrics PARis
- Solovis
- MSCI ESG Ratings, MSCI Fund Analyzer
- Public markets database
- Returns-based style analysis, regression analysis
- Risk analysis
- Asset-liability modeling
- Mutual fund information, analytics, index information
- Hedge fund research library and portal
- Private markets database
- Private markets research
- Private equity research
- Private equity research
- Performance measurement
- Private markets performance measurement
- ESG characteristics analysis

## Services

We have a centralized investment team that supports service delivery for varied client governance models.



## Clients

Verus currently has 153 retainer clients with total of more than \$742 billion\* in assets under advisement. \$737.9 billion in traditional consulting services, and \$4.2 billion in discretionary services. Below is a representative client list.

NOT-FOR-PROFIT		CORPORATE	PUBLIC	MULTI-EMPLOYER
501(c) Services	Leichtag Foundation	AbbVie, Inc.	Fresno County Employees' Retirement Assn.	112/73 Retirement Trust Fund NECA-IBEW
American University in Cairo	Miller Foundation	Apria Healthcare 401K Savings Plan	Illinois Police Officers' Pension	Alaska Ironworkers
Archdiocese of Seattle	Offutt Family Foundation	Avista Corporation	Imperial County Employees' Retirement System	Alaska Plumbing & Pipefitting
Association for Cultural Interchange	Pacific Lutheran University	Barrick Gold Corporation	Indiana Public Retirement System	Arizona Bricklayers' Employer-Industrial Sheet Metal Workers Local No. 16
AVID Center	Puget Sound Energy Foundation	Carollo Engineers	Kern County Employees' Retirement Assn.	Gunite Workers
Barry Foundation	The Salvation Army – Western Division	Eastside Retirement Association	Long Beach Transit Employees Retirement System	IATSE Local 16
Bellarmino Preparatory School	The Offutt Family Foundation	Forever Living Products	Los Angeles Metropolitan Transportation Authority	IATSE Local 720
Carroll College	The San Diego Foundation	Group Health Cooperative	Massachusetts PRIM	IBEW #76
Community Foundation of N. Central WA	Seattle Country Day School	Hanford Site	Missouri State Employees' Retirement System	IBEW #100
Community Foundation for Monterey County	Sherwood Trust	Harnish Group	Pasadena Fire and Police Retirement System	IBEW #684
Community Foundation of Southern Arizona	Sisters of St. Dominic	H.D. Fowler Company	Sacramento County Employees Retirement System	IBEW #1710
Concordia College	Skagit Valley Regional Health	Independent Guard Association of Nevada	San Jose Federated City Employees Retirement System	IBEW Pacific Coast
Confluence Health	St Paul & Minnesota Community Foundation	Jack in the Box, Inc.	San Jose Police & Fire Department Retirement	Idaho Operating Engineers
Congregation of the Sisters of Mercy	University Corporation at Monterey Bay	Karsten Manufacturing	San Luis Obispo County Pension Trust	Inlandboatmen's Union
Diocese of San Bernardino	University of Colorado Health	Moss-Adams LLP	San Mateo County Employees Retirement Association	Inland Empire Electrical Workers
El Rio Health	University of Missouri System	Mutual of Enumclaw Insurance Company	South Carolina Retirement System	Juan de la Cruz Farm Workers
Evergreen Healthcare	UC San Diego Foundation	NECA Puget Sound Chapter	Stanislaus County Employees' Retirement Association	Laborers AGC Pension Trust of Montana
Gonzaga University	Whitworth University	Sullivan Family of Companies	Tennessee Consolidated Retirement System	Marine Carpenters
Group Health Foundation		The Seattle Times	Tulare County Employees' Retirement Assn.	Montebello Teachers Association
Hospice Foundation		Unibail-Rodamco-Westfield	West Virginia Investment Management Board	Northern California Pipe Trades
Idaho Community Foundation			Wisconsin State Investment Board	
Inland Empire Community Foundation				
				Southern California Floor Covering
				Oregon and Southwest Washington Painters
				Oregon Retail Employees
				Oregon Sheet Metal Workers
				Painters & Allied Trades Paint Makers
				Pension Plan for Employees of CA Labor Federation, AFL CIO
				Pipe Trades District Council No. 36
				Plasterers Local No. 82
				Puget Sound Electrical Workers
				San Diego County Cement Masons
				San Diego Teamsters
				San Diego Theatrical Sheet Metal Local 88
				Signatory Employers – Idaho Laborers
				Solano and Napa Counties Electrical Workers
				Sound Retirement Trust
				Southern California Cement Masons
				U.A. Local #290 (Portland Plumbers)
				U.A. Local No 343
				U.A. Local #447
				Washington State Plumbers
				Western Glaziers
				Western Washington Laborers
				Western Washington U.A. Supplemental

\*Preliminary assets under advisement as of June 30, 2023.

## Our Philosophy

Our consulting capabilities follow a consistent and research-driven approach that is governed by the following principles:

1. Return objectives, tolerance for risk, and the strategic mission of the enterprise should drive strategic asset allocation.
2. Risk-free rates and risk premia drive most market returns and are themselves influenced by market and economic fundamentals.
3. Investment skill exists, and the deployment of active management where inefficiencies can be exploited is often essential to achieving investment success in both public and private markets.
4. Fees and costs must be managed and minimized where appropriate.
5. Good results can best be achieved by managing uncertainty using varied risk management tools, complemented by discipline, skepticism, and humility.
6. A portfolio should be as simple as possible for the goals it is designed to achieve. Investment complexity requires strong governance and appropriate investment oversight.

## Manager Search and Research

Verus assists our clients with sourcing, evaluation, selection, and monitoring of managers and investment products for both public and private assets in the following ways: (1) Identifying new investment opportunities. (2) Providing comparative data from a comprehensive investment manager database of global public and private market asset managers as well as Verus’ recommended manager list and manager evaluation protocols. (3) Providing investment manager research reports and information related to public and private investments, managers, economic and/or general market conditions. (4) Assisting with the preparation of Requests for Proposals, development of evaluation factors and methods, evaluating proposals, interviewing managers, and making recommendations concerning the selection and termination of managers. (5) Reviewing benchmarks, performance objectives, risk tolerances and investment guidelines for the selected external public and private market managers. (6) Reviewing the investment philosophy, decision-making process, strategies, and competitive advantages of public and private market managers.

The overarching goal of our manager evaluation and selection process is to find reliable, institutional quality investment products that have a proven repeatable approach for producing returns over the long-term. What we look for are differentiating characteristics around five key principles that guide due diligence and will most likely drive investment outcomes. A product that successfully meets our evaluation criteria is deemed to be reliable, of institutional quality, and demonstrates a proven, repeatable approach for producing returns over the long-term.

- Alignment: The investment product is supported by a robust and stable organizational and team structure.
- Edge: The manager has articulated an inefficiency or market-based belief that informs its process.
- Implementation: The manager has described an investment approach which is sensible and repeatable.
- Optimal Use of Risk: The manager has an effective framework to assess and manage risk inherent in its process.
- Understandable Performance: Historical and future performance sensitivities are consistent with the manager’s process.

## Database

Verus uses a combination of internally developed and third-party databases to screen the broad universe of managers and investment products:

Name of database	Purpose
RMS	Internally developed database that serves as a repository of meeting notes and due diligence materials. Contains data on all actively covered and recommended products and managers. Contains data on other managers that are not rated but our

Name of database	Purpose
	research and/or consulting teams have met with or conducted due diligence on.
eVestment	Primary database for initial screening universe of public assets.
Morningstar Direct	Primary database for initial screening universe of public assets.
PitchBook	Primary database for initial screening universe of private assets (private equity, private credit, real assets).
Aksia	Initial screening universe and operational due diligence of hedge funds.

Neither Verus nor the third-party providers charge fees for inclusion in the databases. A manager simply has to submit and periodically update firm and performance data to be included.

## Performance Measurement

Verus’ main tool for performance analytics and source of peer universe data is Investment Metrics’ Portfolio Analytics Reporting platform (PARis). PARis enables institutional investors and advisors to aggregate, analyze, optimize, and report on investment portfolios across plan types, plan sizes, asset classes, styles, and universes. PARis is built on a single, integrated platform, aggregating data from custodians, market indexes, managers, and clients and covering over \$14 trillion in assets under advisement for over 20,000 institutional plans and 900,000 portfolios. The solution provides over 200 standard reports with built-in analytics and the flexibility to create branded, customized reports for institutional investment portfolios with confidence, differentiation, and efficiency. The universe aggregates data submitted by institutional investment consulting organizations using institutional and custodial statements for separate accounts, and investment managers for privately held or commingled funds. The databases contain at least twenty-five years of performance data on each of the major asset classes and are updated monthly.

Performance is calculated internally and verified by a 14-person Performance Analytics team. Our standard performance measurement reporting package includes the following sections: Executive Summary, Capital Markets Review, Asset Allocation Review, Performance Detail and Total Fund, Asset Class and Manager Levels, and Performance Attribution and Analytics.

## Private Markets Consulting

Many of our clients allocate 3%-30% of their assets to the private markets (buyouts, venture capital, debt-related and international investments). As in public markets investments, we apply the “three

legs” of managing an investment program to the private markets arena: strategic planning, policy implementation, and monitoring. Specifically, we assist our clients in the following areas:

- Review of current alternative investments program
- Private markets education
- Restructuring of current program
- Private markets asset class allocation program
- Development of private markets investment policy and guidelines
- Partnership reviews and recommendations
- Due diligence reviews of current and prospective partnerships
- Ongoing oversight and performance measurement of private markets investments

We have a dedicated consulting team who specialize in private markets consulting. We use a combination of in-house research, due diligence, and third-party databases to support our efforts, including Private i, a robust database and performance measurement application developed by The Burgiss Group, and VentureXpert, published by Thompson Financial. We believe that success in this asset class is not a random occurrence, but a discipline that can be monitored and replicated – both by the general partners and the plan sponsor – and we help provide that discipline through our services.

## Trustee Education

Verus develops educational programs for our clients’ trustees, typically as an integral part of the strategic planning/asset allocation process. We have conducted various types of on-site training and education workshops for institutional investors covering topics, such as:

- Fiduciary Responsibility
- Performance Measurement
- Securities Lending
- Mortgage-Backed Securities
- Asset Allocation
- Investment Industry Evolution
- New Trustee Education
- Option Strategies
- International Investing
- 401(k) Participation
- Capital Market Theory
- Venture Capital Investing
- Overlay Implementation
- Alternative Investments
- Manager Search
- Emerging Markets
- Hedge Funds

## Biographies

### Mr. Jeffrey MacLean

Chief Executive Officer

Mr. MacLean joined Verus in 1992 and is primarily responsible for managing the firm and providing investment advice to several clients. He has over 35 years of investment and consulting experience, working with all asset classes for a range of clients including corporate defined benefit plans, public institutions, multi-employer trusts, endowments, and foundations. He chairs the firm's management committee, as well as the investment committee, which provides strategic guidance on research initiatives and vets investment manager recommendations. He also is a member of the OCIO investment committee and a majority shareholder of the firm.

Mr. MacLean often speaks at investment forums regarding the macro-economic environment, asset allocation, risk management, alternative investments, and industry trends. Prior to joining Verus, Mr. MacLean was Vice President of Shurgard Realty Group, a real estate advisory firm, and a consultant for Arthur Andersen & Company.

Mr. MacLean currently volunteers for Children's Hospital of Los Angeles and he serves on the advisory board for the University of Washington Foster School of Business. He holds a master's degree in business administration (MBA) from the Darden School of Business and a bachelor's degree in business administration (BBA) from the University of Washington, where he served as student body president in his senior year.

### Mr. Faraz Shooshani

Managing Director | Senior Private Markets Consultant

Mr. Shooshani has more than 25 years of investment and consulting experience, with over 12 years focused on private equity. He joined Verus in 2016 from Strategic Investment Solutions. Mr. Shooshani is a shareholder, sits on the management committee, and he oversees private markets research and consulting at Verus. Additionally, he is the lead consultant on a number client relationships, helping the firm's endowment & foundations, healthcare, and public clients build and manage their private markets and alternatives investments. Mr. Shooshani is a frequent speaker at investment industry conferences globally.

Prior to becoming an investment consultant, Mr. Shooshani was part of the investment management team at the California Institute of Technology (Caltech), where he helped restructure and diversify the university's endowment, charitable income trust, operating cash, and technology transfer stock portfolios. Previously he founded Catapult Ventures, a venture catalyst practice that launched seed- and early-stage startups as venture backed concerns in Silicon Valley.

Mr. Shooshani started his professional career with Booz Allen, a global management consulting firm focused on business strategy, operations efficiency, and information systems across sectors.

## VERUS OVERVIEW

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Additionally, he held finance and sales and marketing roles at a number of operating companies in real estate, textiles, and semiconductor industries.

Mr. Shooshani is an active member and a volunteer at Congregation Emanu-El in San Francisco. He earned his master's in business administration (MBA) from the Yale School of Management, and a bachelor of arts (BA) degree in Economics from the University of California, Berkeley.



### **Mr. Timothy McEnery, CFA**

Managing Director | Senior Consultant

Mr. McEnery is primarily responsible for providing a broad range of investment consulting services to clients to help them in reaching their long-term investment objectives. He has extensive experience partnering with a wide range of institutional investors on every aspect of the investment process, from policy-level decisions to exploring new and innovative investment strategies. He has been a key contributor to special projects that cross multiple asset classes related to portfolio design and investment strategy. In addition, he is a shareholder of the firm and a member of the Verus Investment Committee.

Prior to joining Verus in 2022, Mr. McEnery spent 15 years with Aon (formally EnnisKnupp & Associates), where he served as the primary consultant to several of the firm's discretionary (OCIO) and non-discretionary client relationships. He worked with institutional investors of varying size and complexity whose assets ranged from \$100 million to \$95 billion and included public retirement systems, corporate pension funds and non-profit institutions including endowments, foundations and faith-based organizations. In addition to his work with clients, Mr. McEnery served as a member of Aon's Non-Profit Leadership Team, Public Fund Interest Group, and led a team of senior consultants in Chicago and Philadelphia.

Mr. McEnery is a CFA charterholder (Chartered Financial Analyst) and a member of the CFA Institute and the CFA Society of Chicago. He has a Bachelor of Science degree (BS) in Finance from Eastern Illinois University. Mr. McEnery recently served as a member of the Emerging Leaders Board at Misericordia, a residential facility in Chicago that serves over 600 adults and children with developmental disabilities.



### **Mr. Paul Kreiselmaier, CFA**

Director | Hedge Funds

Mr. Kreiselmaier has over 29 years of investment experience in various roles in both manager due diligence and quantitative research and portfolio management. At Verus, he is primarily responsible for investment strategy, due diligence, portfolio construction recommendations and relationship building across the hedge fund universe, and oversight of the firm's hedge fund program.

Prior to joining Verus, he was a senior research analyst at Russell Investments where he was responsible for evaluating, recommending, and monitoring hedge fund managers for inclusion in client portfolios. He began his career at Russell evaluating US large cap equity and Global Tactical Asset Allocation (GTAA)

managers. He also worked at Mellon Capital Management where he held both research and portfolio management related roles focused on both equity and GTAA mandates.

Mr. Kreiselmaier graduated from Trinity University with a bachelor of arts (BA) degree in economics. He also holds a master's degree in business administration (MBA) from the University of Texas at Austin. He is a CFA charterholder (Chartered Financial Analyst) and a member of both the CFA Institute and the CFA Society of Seattle. Mr. Kreiselmaier is also a member of the Chicago Quantitative Alliance (CQA).



**Mr. Marcel Gesell, CFA**  
Consultant

Mr. Gesell originally joined Verus in 2016 with the merger of Strategic Investment Solutions, rejoining in 2019. Working out of the San Francisco office, he provides general consulting services to a select group of institutional clients. He was also previously responsible for risk-related client support, thought leadership, and contributions to the firm's risk consulting practice. He has more than fifteen years of experience helping large institutional investors design and maintain risk-efficient asset mixes appropriate to their liabilities and their particular level of risk tolerance.

Mr. Gesell joined Strategic Investment Solutions in 2000. Before that, he served as a portfolio manager at First Interstate Bank (now Wells Fargo), where he managed \$200 million in private client accounts. He was responsible for establishing his clients' strategic plans, investment objectives, asset allocation mixes, and portfolio structure.

Mr. Gesell is a CFA charterholder (Chartered Financial Analyst) and a member of the CFA Society of San Francisco. He has a bachelor of science degree (BS) in computational mathematics from Arizona State University and holds a master's degree in business administration (MBA) in finance from San Francisco State University. Prior to his investment management career, he served as a commissioned officer in the United States Army.

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Project Approval  
Steam Heating Plant Renewal  
UMKC

The University of Missouri – Kansas City requests project approval for the Steam Heating Plant Renewal project. The total project budget of \$14,000,000 will be funded by a \$14,000,000 internal loan.

The University of Missouri-Kansas City Volker Campus includes three large steam plants to provide heating for the majority of the buildings on the campus. The three large plants are located in the Miller Nichols Library, Spencer Chemistry, and School of Education. Each plant provides steam to the surrounding campus buildings through an underground distribution piping. Six of the seven boilers in these large plants have been in service for over 50 years. This project replaces the three boilers in the Miller Nichols Library plant with more efficient, higher capacity boilers and extends the underground piping system to connect with the piping system now served by the aged Spencer Chemistry plant. The additional capacity will allow the new plant to be the primary heating system and the Spencer Chemistry plant will be retained as backup.

The Health Sciences Campus has a heating plant in each of the three facilities – School of Medicine, School of Dentistry, and Health Sciences Building. A recent study has determined that the Health Sciences Building plant has the heating capacity to serve the Health Sciences building and the School of Medicine. The School of Medicine boiler has been in service for over 50 years and has reached the end of its useful life. This project will connect the Health Sciences Building heating plant to the School of Medicine building and decommission the School of Medicine plant.

Introba, Inc., Kansas City, Missouri, is the recommended engineer for this project. The team presented a well-balanced and experienced team with a significant amount of in-depth knowledge of similar projects for other institutions. Introba will provide mechanical and plumbing engineering; SK Design Group, Inc., Shawnee Mission, Kansas will provide civil engineering; Structural Engineering Associates, Inc., Kansas City, Missouri will provide structural engineering; Lamar Johnson Collaborative, Inc., Kansas City, Missouri will provide architectural services; and Antella Consulting Engineering, Inc., Kansas City, Missouri (M/WBE) will provide electrical engineering.

The selection committee also interviewed Insite Group, Inc. Kansas City, Missouri; and Rogers-Schmidt Engineering Co., P.C., St Louis, Missouri.

The fee for basic architectural and engineering services was determined by using the University of Missouri's "Architectural and Engineering Basic Services Fee Estimating Guidelines." The project is considered a Type VI – Engineering Project, and the calculated basic services fee is \$882,240 based upon 9.2% for the School of Medicine plant construction costs of \$3,720,000 and 9% for the Miller Nichols Library plant construction cost of \$6,000,000. Additional services for multiple bid packages are estimated at \$20,000 for a total fee of \$ 902,240.

The project is expected to be completed in 2025. The project will be delivered as a traditional Design-Bid-Build project.

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No. H

Recommended Action - Project Approval, Steam Heating Plant Renewal, UMKC

It was recommended by Chancellor Agrawal, endorsed President Choi, recommended by the Finance Committee, moved by Curator \_\_\_\_\_ and seconded by Curator \_\_\_\_\_, that the following action be approved:

the project approval for the Steam Heating Plant Renewal, UMKC

Funding of the project budget is from:

Internal Loan	<u>\$14,000,000</u>
Total Funding	\$14,000,000

Roll call vote Finance Committee                      YES                      NO

Curator Fry  
Curator Graves  
Curator Layman  
Curator Wenneker

The motion \_\_\_\_.

Roll call vote Full Board:                              YES                              NO

Curator Blitz  
Curator Brncic  
Curator Fry  
Curator Graves  
Curator Holloway  
Curator Layman  
Curator Sinquefield  
Curator Wenneker  
Curator Williams

The motion \_\_\_\_\_.

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Project Approval  
Student Success, Atterbury and Miller Nichols Library Renovations  
UMKC

The University of Missouri – Kansas City requests project approval of the Student Success, Atterbury and Miller Nichols Library Renovations project. The total project budget is \$30,000,000. The project will be constructed in two phases. Phase One will be the Miller Nichols Library Renovation and Phase Two will be the Atterbury Renovation. UMKC is currently seeking project approval for the Phase One Miller Nichols Library Renovation and AE Hire for the Phase Two project. The total budget for Phase One is \$11,500,000 and the funding source is \$3,992,000 from MoExcels and \$7,508,000 from gifts. The Phase Two budget is \$18,500,000 and UMKC will seek funding approval at a later date.

The current facilities for UMKC’s Department of Student Success are limited in their ability to accommodate the increasing demand for student support services, including academic advising, tutoring, and career development resources. Modern student support services require state-of-the-art technology and flexible spaces that can be used for individual and group study, meetings, and events. The current facilities located in Atterbury Student Success Center are outdated and unable to provide the necessary spaces that are essential for student success. The additional space gained on the 4<sup>th</sup> Floor of Miller Nichols Library for the Department of Student Success will provide students with the resources and support they need to achieve their academic goals, reach their full potential, and succeed in their studies.

The Phase One project will renovate the approximately 31,300 gross square feet (gsf) of the fourth floor of Miller Nichols Library modifying and consolidating the existing library functions on the fourth floor to provide space for the Department of Student Success. This renovated space will support Undergraduate Research, Escalators Program, Bloch Scholars/Scholars, Academic Support Mentoring, Peer Academic Leaders, shared common space, and provide long-term storage.

Phase Two of this project will renovate approximately 44,000 (gsf) of the basements, first and second floors in the Atterbury Student Success Center. This renovated space will support Admissions and the Welcome Center, UMKC Central, Roo Advising, Financial Wellness, Career Services, University College, School of Medicine, International Student Affairs, Graduate Studies, and shared/common spaces.

Peckham Guyton Albers Viets, Inc., St. Louis, Missouri is the recommended architect for this project. The team presented a well-balanced and experienced team with a significant amount of Student Success projects for UMKC and other institutions. The team also has recent experience with a major Miller Nichols Renovation project. Peckham Guyton Albers & Viets, Inc., St. Louis, Missouri will provide architectural design services; BranchPattern, Inc., Kansas City, Missouri (MBE), will provide mechanical, plumbing, and fire protection engineering services; and Antella Consulting Engineers, Inc., Kansas City, Missouri (M/WBE) will provide electrical engineering services.

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The selection committee also interviewed TREANORHL, Inc., Kansas City, Missouri, and DLR Group, Inc., Overland Park, Kansas.

The fee for basic architectural and engineering services was determined by using the University of Missouri's "Architectural and Engineering Basic Services Fee Estimating Guidelines." The project is considered a Type IV – Renovation (more than average complexity), and the calculated basic services fee is \$1,864,200 based upon 7.8% of the \$23,900,000 estimated construction cost. Additional services for advanced programming services, is anticipated at \$315,950, for a total design fee of \$2,180,150.

Phase One (Miller Nichols Library) of the project is expected to be completed in August 2025. Phase Two (Atterbury) of the project is expected to be completed in August 2026. The project will be delivered as a traditional Design-Bid-Build project.

No. I

Recommended Action - Project Approval, Student Success, Atterbury and Miller Nichols Library Renovations, UMKC

It was recommended by Chancellor Agrawal, endorsed President Choi, recommended by the Finance Committee, moved by Curator \_\_\_\_\_ and seconded by Curator \_\_\_\_\_, that the following action be approved:

the project approval for the Student Success, Atterbury and Miller Nichols Library Renovation Phase One and AE Hire for Phase II, UMKC

Funding of the project budget is from:

MoExcels	\$3,992,000
Gifts	<u>\$7,508,000</u>
Total Funding	\$11,500,000

Roll call vote Finance Committee                      YES                      NO

Curator Fry  
Curator Graves  
Curator Layman  
Curator Wenneker

The motion \_\_\_\_\_.

Roll call vote Full Board:                              YES                      NO

Curator Blitz  
Curator Brncic  
Curator Fry  
Curator Graves  
Curator Holloway  
Curator Layman  
Curator Siquefield  
Curator Wenneker  
Curator Williams

The motion \_\_\_\_\_.

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Project Approval  
Engineering Research Lab Renovation and Addition  
Missouri S&T

Missouri University of Science and Technology requests project approval for the Engineering Research Lab (ERL) Renovation and Addition project. The total project budget of \$49,000,000 will be funded from \$11,182,500 in gifts, \$14,785,000 of campus funds, and \$23,032,500 State Appropriation.

S&T's master plan is based on three priorities: to build research, innovation, and entrepreneurial thinking; to increase the university's recognition and improve its rankings; and to increase recruitment and retention. ERL is home to multiple interdisciplinary research laboratories, offices, and classrooms. The existing building, constructed in 1971, is at maximum capacity and is in poor condition. The proposed renovations and addition will allow for the expansion of research opportunities, eliminate approximately \$17.8 million in facility needs, provide an anchor facility to the northeast corner of campus, and assist with the north star goal of obtaining a Carnegie R1 Designation.

The Engineering Research Lab Renovation and Addition project will be completed in two phases. The first phase will include a 33,000 gross square foot (gsf) addition consisting primarily of interdisciplinary research laboratories as well as a new class 1000 clean room, a shared pure water room, and a campus shared isolated imaging lab. The addition will also house all new switchgear and air handling units to serve both the addition and the existing ERL. Phase II will be a complete renovation of the 43,421 gsf existing ERL facility.

Clark & Enersen, Inc., Kansas City, Missouri is the recommended architect for this project. Clark & Enersen presented multiple projects that demonstrated they have the knowledge and experience to complete this project. Clark and Enersen will provide architecture; and mechanical, plumbing, and electrical engineering; Leigh & O'Kane, LLC, Lee Summit, Missouri (WBE) will provide structural engineering; FSC, Inc., Overland Park, Kansas (MBE) will provide fire protection engineering; and SK Design, Inc., Shawnee Mission, Kansas will provide civil engineering.

The selection committee also interviewed Odimo, LLC, Kansas City, Missouri, Hastings & Chivetta Architects, Inc., St. Louis, Missouri, and The Lamar Johnson Collaborative, Inc., St. Louis, Missouri.

The fee for basic architectural and engineering services was determined by using the University of Missouri's "Architectural and Engineering Basic Services Fee Estimating Guidelines." The project is considered a Type IV – New Construction & Renovation (more than average complexity), and the calculated basic services fee is \$2,598,750 based upon 6.75% of the estimated \$38,500,000 construction cost. Additional services for lab planning and elevator consultant; and reimbursable expenses are anticipated at \$120,000 for a total fee of \$2,718,750.

The project is expected to be complete by September 2026. The project will be delivered as a Construction Manager at Risk project due to the size and complexity.

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No. J

Recommended Action - Project Approval, Engineering Research Lab Renovation and Addition, S&T

It was recommended by Chancellor Dehghani, endorsed President Choi, recommended by the Finance Committee, moved by Curator \_\_\_\_\_ and seconded by Curator \_\_\_\_\_, that the following action be approved:

the project approval for the Engineering Research Lab Renovation and Addition, S&T

Funding of the project budget is from:

State Appropriation	\$23,032,500
Gifts	\$11,182,500
Campus Funds	<u>\$14,785,000</u>
Total Funding	\$49,000,000

Roll call vote Finance Committee                      YES                      NO

Curator Fry  
Curator Graves  
Curator Layman  
Curator Wenneker

The motion \_\_\_\_\_.

Roll call vote Full Board:                      YES                      NO

Curator Blitz  
Curator Brncic  
Curator Fry  
Curator Graves  
Curator Holloway  
Curator Layman  
Curator Siquefield  
Curator Wenneker  
Curator Williams

The motion \_\_\_\_\_.

Project Approval  
Norwood, Parker, Harris HVAC Systems Replacement  
Missouri University of Science and Technology

Missouri University of Science and Technology requests project approval for The Norwood, Parker, and Harris HVAC Systems Replacement project. The total project budget of \$18,935,000 is funded by \$9,467,500 from gifts, and \$9,467,500 from a State Appropriation.

Parker, Norwood, and Harris Hall currently utilize air sourced heat pumps with variable refrigerant flow (VRF) mechanical systems. Since the existing VRF systems were placed into operation, there have been numerous refrigerant leaks, compressor failures, and capacity issues. These systems also require more maintenance and are more costly to modify when renovations are needed. The proposed new mechanical system will eliminate these issues, lower operating costs, and eliminate \$5.8 million in maintenance needs.

This project replaces the mechanical systems in Parker Hall, Norwood Hall, and Harris Hall. Central variable speed air handling units, variable air volume terminal units with hot water reheat coils, pumps, controls, piping, and associated work will be installed. Hot and chilled water for the new mechanical systems will be provided by the new geothermal plant being constructed currently with the Student Experience Center.

The McClure Corporation, St. Louis, Missouri is the recommended consultant. They have successfully completed multiple projects for Missouri S&T including the S&T campus geothermal system. McClure will provide mechanical, electrical, and plumbing engineering; Patterhn Ives, LLC, St. Louis, Missouri will provide architecture; KPFF, Inc., St. Louis, Missouri will provide structural engineering; and David Mason & Associates, Inc., (MBE) St. Louis, Missouri will provide civil engineering.

The selection committee also interviewed RTM Engineering Consultants, Inc., St. Louis, Missouri, and SSC Engineering, Inc., Chesterfield, Missouri.

The fee for basic architectural and engineering services was determined by using the University of Missouri's "Architectural and Engineering Basic Services Fee Estimating Guidelines." The project is considered a Type VI – Engineering Project, and the calculated basic services fee is \$1,241,383 based upon 8.5% of the estimated construction costs of \$14,604,512. Reimbursable expenses will not exceed \$10,000 for a total of fee of \$1,252,383.

The project is expected to be complete by March of 2026. The project is anticipated to be delivered as a traditional Design-Bid-Build project.

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No. K

Recommended Action - Project Approval, Norwood, Parker, Harris HVAC Systems Replacement, S&T

It was recommended by Chancellor Dehghani, endorsed President Choi, recommended by the Finance Committee, moved by Curator \_\_\_\_\_ and seconded by Curator \_\_\_\_\_, that the following action be approved:

the project approval for the Norwood, Parker, Harris HVAC Systems Replacement, S&T

Funding of the project budget is from:

State Appropriation	\$9,467,500
Gifts	<u>\$9,467,500</u>
Total Funding	\$18,935,000

Roll call vote Finance Committee                      YES                      NO

Curator Fry  
Curator Graves  
Curator Layman  
Curator Wenneker

The motion \_\_\_\_\_.

Roll call vote Full Board:                              YES                              NO

Curator Blitz  
Curator Brncic  
Curator Fry  
Curator Graves  
Curator Holloway  
Curator Layman  
Curator Sinquefield  
Curator Wenneker  
Curator Williams

The motion \_\_\_\_\_.

September 7, 2023

Project Approval  
Schrenk Hall East Renovation  
Missouri University of Science and Technology

Missouri University of Science and Technology requests project approval for the Schrenk Hall East Renovation project. The total project budget of \$32,000,000 will be funded by \$16,000,000 from a State Appropriation, \$14,350,000 from gifts, and \$1,650,000 from campus.

S&T's master plan is based on three priorities: to build research, innovation, and entrepreneurial thinking; to increase the university's recognition and improve its rankings; and to increase recruitment and retention. Schrenk Hall East houses teaching and research laboratories, a large lecture hall, and faculty offices primarily for Biological Sciences and Chemistry Departments. The existing building, constructed in 1940, is in very poor condition with a current facilities condition needs index (FCNI) is 0.62. The renovation planned will address over \$20 million in current facility needs.

This project will renovate the 4-story, 55,000 gross square feet (gsf) building, and will be phased to accommodate partial occupancy during construction. The renovation improvements will provide efficient research and teaching laboratories, and updated classrooms and offices. The mechanical, electrical, plumbing, and fire protection systems will be replaced, and code and accessibility issues will be addressed. Site and exterior improvements include accessible entries, brick tuckpointing, window and roof replacement, and sidewalk replacements. A new north entry to the building will provide an accessible front door with a direct connection to the Arrival District.

Odimo, LLC, (WBE) Kansas City, Missouri is the recommended architect for this project. Odimo presented a strong team with extensive knowledge of similar laboratory renovation projects. The design team includes Odimo as the lead architect; Peckham Guyton Albers & Viets, Inc., (PGAV) St. Louis, Missouri will be the associate architect and will provide laboratory planning; The McClure Corporation, St. Louis, Missouri will provide mechanical, electrical, plumbing, and fire protection engineering; KPFF, Inc., St. Louis, Missouri will provide structural engineering; CM Archer Group, P.C., Rolla, Missouri will provide civil engineering; and SWT Design, Inc., St. Louis, Missouri will provide landscape architecture.

The selection committee also interviewed Christner, Inc., St. Louis, Missouri and KWK Architects, LLC, St. Louis, Missouri.

The fee for basic architectural and engineering services was determined by using the University of Missouri's "Architectural and Engineering Basic Services Fee Estimating Guidelines." The project is considered a Type IV – Renovation (more than average complexity), and the calculated basic services fee is \$1,911,000 based upon 7.8% of the estimated \$24,500,000 construction cost. Additional services for lab planning, phased construction observation, elevator consultant, and site survey; and reimbursable expenses are anticipated at \$206,600 for a total fee of \$2,117,600.

The project is expected to be complete by December 2026. The project will be delivered as a Construction Manager at Risk project due to complexity.

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No. L

Recommended Action - Project Approval, Schrenk Hall East Renovation, S&T

It was recommended by Chancellor Dehghani, endorsed President Choi, recommended by the Finance Committee, moved by Curator \_\_\_\_\_ and seconded by Curator \_\_\_\_\_, that the following action be approved:

the project approval for the Schrenk Hall East Renovation, S&T

Funding of the project budget is from:

State Appropriation	\$16,000,000
Gifts	\$14,350,000
Campus Funds	<u>\$1,650,000</u>
Total Funding	\$32,000,000

Roll call vote Finance Committee                      YES                      NO

Curator Fry  
Curator Graves  
Curator Layman  
Curator Wenneker

The motion \_\_\_\_\_.

Roll call vote Full Board:                      YES                      NO

Curator Blitz  
Curator Brncic  
Curator Fry  
Curator Graves  
Curator Holloway  
Curator Layman  
Curator Siquefield  
Curator Wenneker  
Curator Williams

The motion \_\_\_\_\_.

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Project Reapproval  
College of Education to Quad Area  
UMSL

The University of Missouri – St. Louis requests project reapproval for the College of Education to Quad Area project to include the relocation of the Honors College, increase the project budget from \$21,780,000 to \$30,780,000, and to modify the funding sources.

In September 2022, the BOC approved both the College of Education to Quad project and the Optometry and Honors College Consolidation project. The Optometry and Honors College Consolidation project planned to renovate the Provincial House. Upon the completion of a program study, the renovation of Provincial House was deemed cost prohibitive. The program study indicated that the Honors College could be accommodated in the Social Sciences Building (SSB) with the College of Education. Consequently, \$9 million from the Optometry and Honors College Consolidation project will be added to the College of Education to Quad Area project to accommodate the Honors College relocation to SSB. The remaining \$6.95 million of the Optometry and Honors College project budget will be used to move Optometry to the North J.C. Penney Building. This work will be completed in a separate project.

The College of Education to Quad Area project total project budget of \$21,780,000 consisted of \$11,584,980 appropriation from the State and \$10,195,020 from the campus. With the addition of the Honors College relocation and an additional state appropriation, the funding plan for the \$30,780,000 budget is \$29,780,000 from state appropriations and \$1,000,000 from gifts.

This project is aligned with UMSL's ten-year Master Plan, Space Survey, and ISES Report by addressing two major findings. First, all studies have identified UMSL as having excessive space compared to campus demands resulting in unsustainable operating costs. Second, the Master Plan has identified that UMSL is lacking common areas where students can study, learn, and collaborate with their peers. This consolidation effort is vital to UMSL's survival, and will reduce UMSL's overall footprint, lowering the gross square feet (gsf), thus reducing operational expenses, and addressing deferred maintenance across eight buildings while adding collaboration space to help retain and attract student enrollment. The College of Education is operating in several buildings on South Campus. The Honors College is located in the Provincial House building, the renovation of which has been demonstrated to be cost prohibitive. Renovating underutilized space at the Social Sciences Building on North Campus will allow UMSL to consolidate the college and further reduce UMSL's facilities needs. This project will contribute to the overall \$45 million estimated savings for all UMSL proposed consolidation projects. This project is necessary to begin steps in the strategic plan to improve space efficiencies across campus and help bring education programs up to modern teaching platforms by adding technology to the classrooms.

This project will renovate the Social Science Building (SSB), demolish the SSB tower, construct a new elevator on the main SSB building, and construct a building expansion on SSB. The renovation of SSB will include constructing offices, laboratories, classrooms, and common core areas to consolidate space for the College of Education and Honors College to move from South Campus. The project will also include extensive renovation to common use areas to allow students

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to study and collaborate in the space. The renovation will replace mechanical, plumbing, and electrical systems, correct building envelope issues, address life safety and accessibility issues as well as providing the technology required to teach and learn in today's modern-day world.

The project is expected to be complete by January of 2026. The project will be delivered as a traditional Design-Bid-Build project.

No. M

Recommended Action - Project Reapproval, College of Education to Quad Area, UMSL

It was recommended by Chancellor Sobolik, endorsed President Choi, recommended by the Finance Committee, moved by Curator \_\_\_\_\_ and seconded by Curator \_\_\_\_\_, that the following action be approved:

the project reapproval for the College of Education to Quad Area, UMSL

Funding of the project budget is from:

State Appropriations	\$29,780,000
Gifts	<u>\$1,000,000</u>
Total Funding	\$30,780,000

Roll call vote Finance Committee                      YES                      NO

Curator Fry

Curator Graves

Curator Layman

Curator Wenneker

The motion \_\_\_\_\_.

Roll call vote Full Board:                                      YES                                      NO

Curator Blitz

Curator Brncic

Curator Fry

Curator Graves

Curator Holloway

Curator Layman

Curator Siquefield

Curator Wenneker

Curator Williams

The motion \_\_\_\_\_.

Project Reapproval  
Music and Fine Arts Relocation to Arts and Administration Building, North Campus  
UMSL

The University of Missouri – St. Louis requests project reapproval to modify the funding sources for the Music and Fine Arts Relocation to Arts and Administration Building, North Campus project.

In September 2022, the Board approved the Music and Fine Arts Relocation to Arts and Administration Building, North Campus project with a total project cost of \$12,100,000 funded from \$6,436,100 appropriation from the State and, \$5,663,900 from the campus. With an additional state appropriation this year, the current project funding will be \$11,100,000 from State Appropriations, and \$1,000,000 from gifts.

This project is aligned with UMSL’s ten-year Master Plan, Space Survey, and ISES Report by addressing two major findings. First, all studies have identified UMSL as having excessive space compared to campus demand resulting in unsustainable operating expenses. Second, the Master Plan has identified that UMSL is lacking common areas where students can study, learn, and collaborate with their peers resulting in lost enrollment to other state schools. The proposed consolidation effort is vital to UMSL’s survival and will reduce UMSL’s overall footprint, lowering the gross square feet (gsf), thus reducing operational expenses, and addressing facilities needs across seven buildings while adding collaboration space to help retain and attract student enrollment. If all the proposed projects (School of Optometry & Honors College consolidation, College of Education to Quad Area, & Music and Fine Arts to AAB) are approved and implemented, \$45 million in facilities needs will be eliminated.

This project will relocate the programs in the Music and Fine Arts buildings into the Arts and Administration Building on North Campus. This affords the opportunity to demolish the Music Building and eliminate a significant amount of deferred maintenance. These changes will support the University’s effort to make better use of existing spaces and focus the core academic facilities to the center of the campus and away from the peripheries. The project will include new infrastructure, classrooms, teaching labs, and associated technology required to teach and learn in today’s modern education environments. The renovation of the Arts and Administration Building will include faculty and staff offices, large ensemble practice space and/or recital hall, music practice rooms, classroom, and support spaces (i.e., conference/meeting rooms, kitchen, lounge, workroom, and storage).

The project is expected to be complete by Fall 2024. The project will be delivered traditional Design-Bid-Build.

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No. N

Recommended Action - Project Reapproval, Music and Fine Arts Relocation to Arts and Administration Building, North Campus, UMSL

It was recommended by Chancellor Sobolik, endorsed President Choi, recommended by the Finance Committee, moved by Curator \_\_\_\_\_ and seconded by Curator \_\_\_\_\_, that the following action be approved:

the project reapproval for the Music and Fine Arts Relocation to Arts and Administration Building, North Campus, UMSL

Funding of the project budget is from:

State Appropriations	\$11,100,000
Gifts	<u>\$1,000,000</u>
Total Funding	\$12,100,000

Roll call vote Finance Committee                      YES                      NO

Curator Fry  
Curator Graves  
Curator Layman  
Curator Wenneker

The motion \_\_\_\_\_.

Roll call vote Full Board:                      YES                      NO

Curator Blitz  
Curator Brncic  
Curator Fry  
Curator Graves  
Curator Holloway  
Curator Layman  
Curator Sinquefield  
Curator Wenneker  
Curator Williams

The motion \_\_\_\_\_.

September 7, 2023

Project Reapproval  
Thomas Jefferson Library Renovation  
UMSL

The University of Missouri – St. Louis requests project reapproval to increase the project budget from \$11,330,000 to \$14,330,000 and modify the funding sources for the Thomas Jefferson Library Renovation project.

In September 2022, the Board approved the Thomas Jefferson Library Renovation project with a total project cost of \$11,330,000 funded from \$3,300,000 in gifts, \$3,876,530 appropriation from the State, \$3,153,470 from the campus, and \$1,000,000 grant from The Bellwether Foundation. An additional state appropriation this year will allow the scope of the original envisioned project to be completed. The current project budget of \$14,330,000 will be funded from \$5,030,000 in State Appropriations, \$6,300,000 in gifts and grants, and \$3,000,000 in campus funds.

The project aligns with UMSL’s ten-year Master Plan by addressing the deficiency of common study areas and collaboration spaces on campus. The Master Plan identified a lack of common areas where students can study, learn, and collaborate with peers. In conjunction with the north campus consolidation efforts, the quad area will become more densely populated creating the need for an additional library entry from the north. This new entrance will allow students to access the Thomas Jefferson Library more easily from the core classroom buildings that surround the quad. This renovation is vital to UMSL’s future, by aiding in attracting new students and will help with student retention.

Renovation of the Thomas Jefferson Library will support the north campus consolidation growth and will create common student areas which provide new spaces to study and collaborate. This project will also include relocation of the existing cafe area to the north side of the building, closer to the quad area for easier student access. Additionally, the project consolidates the computer labs on north campus, and provides new classrooms with associated modern technology. Exterior improvements include the additional new library entrance with improved signage, sidewalks, and improved accessible routes. Infrastructure enhancements include updated HVAC, updated security system, and improvements to the building envelope. The project will also include a new art gallery in the adjacent Mercantile Library space.

The project will be delivered traditional Design-Bid-Build and is expected to be complete by Winter 2024.

September 7, 2023

No. O

Recommended Action - Project Reapproval, Thomas Jefferson Library Renovation, UMSL

It was recommended by Chancellor Sobolik, endorsed President Choi, recommended by the Finance Committee, moved by Curator \_\_\_\_\_ and seconded by Curator \_\_\_\_\_, that the following action be approved:

the project reapproval for the Thomas Jefferson, Library Renovation, UMSL

Funding of the project budget is from:

State Appropriation	\$5,030,000
Gifts and Grants	\$6,300,000
Campus Funding	<u>\$3,000,000</u>
Total Funding	\$14,330,000

Roll call vote Finance Committee                      YES                      NO

Curator Fry

Curator Graves

Curator Layman

Curator Wenneker

The motion \_\_\_\_\_.

Roll call vote Full Board:                              YES                              NO

Curator Blitz

Curator Brncic

Curator Fry

Curator Graves

Curator Holloway

Curator Layman

Curator Sinquefield

Curator Wenneker

Curator Williams

The motion \_\_\_\_\_.

September 7, 2023

Project Reapproval  
Richter Family - Welcome and Alumni Center  
UMSL

University of Missouri – St. Louis requests project reapproval to increase the project budget from \$14,200,000 to \$18,200,000 and modify the funding sources for the Richter Family Welcome and Alumni Center.

In September 2022, the Board approved the Richter Family - Welcome and Alumni Center project with a total project cost of \$14,200,000 funded from a \$4,271,200 appropriation from the State, \$3,428,800 from the campus, and \$6,500,000 from gifts. An additional state appropriation this year along with additional gifts and campus funding will offset the construction cost escalation experienced and allow the scope of the original envisioned project to be completed. The current project budget of \$18,200,000 will be funded from \$5,500,000 in State Appropriations, \$8,700,000 in gifts, and \$4,000,000 in campus funds.

This project is aligned with UMSL’s ten-year Master Plan by focusing growth on the North Campus and leveraging underutilized space. The JC Penney Building is located in a prominent and central location on the north campus which provides an excellent opportunity to provide a new “front door” to welcome visitors, alumni, and potential students to campus.

This project will renovate underutilized space in the JC Penney Building and provide a new building façade. The project will construct a new lobby, welcoming area, large gathering area, meeting rooms and outdoor plaza. The renovation will update mechanical, electrical, and plumbing systems as needed and provide updated technology to the facility. New office suites will be constructed to support campus Admissions, Alumni Activities, and New Student Programs groups.

The project is expected to be complete by Summer 2025. The project will be delivered as a traditional Design-Bid-Build project.

September 7, 2023

No. P

Recommended Action - Project Reapproval, Richter Family - Welcome and Alumni Center, UMSL

It was recommended by Chancellor Sobolik, endorsed President Choi, recommended by the Finance Committee, moved by Curator \_\_\_\_\_ and seconded by Curator \_\_\_\_\_, that the following action be approved:

the project reapproval for the Richter Family - Welcome and Alumni Center, UMSL

Funding of the project budget is from:

State Appropriation	\$5,500,000
Gifts	\$8,700,000
Campus Funding	<u>\$4,000,000</u>
Total Funding	\$18,200,000

Roll call vote Finance Committee	YES	NO
Curator Fry		
Curator Graves		
Curator Layman		
Curator Wenneker		

The motion \_\_\_\_\_.

Roll call vote Full Board:	YES	NO
Curator Blitz		
Curator Brncic		
Curator Fry		
Curator Graves		
Curator Holloway		
Curator Layman		
Curator Siquefield		
Curator Wenneker		
Curator Williams		

The motion \_\_\_\_\_.

September 7, 2023

# FINANCE COMMITTEE

Todd P. Graves, Chair  
Robert W. Fry  
Jeff L. Layman  
Robin R. Wenneker

The Finance Committee ("Committee") oversees the fiscal stability and long-term economic health of the University. The Committee will review and recommend policies to enhance quality and effectiveness of the finance functions of the University.

## I. Scope

In carrying out its responsibilities, the Committee monitors the University's financial operations, fundraising performance, debt level, capital priorities and investment performance; requires the maintenance of accurate and complete financial records; and maintains open lines of communication with the Board about the University's financial condition.

## II. Executive Liaison

The Vice President for Finance of the University or some other person(s) designated by the President of the University, with the concurrence of the Board Chair and the Committee Chair, shall be the executive liaison to the Committee and responsible for transmitting committee recommendations.

## III. Responsibilities

In addition to the overall responsibilities of the Committee described above and in carrying out its responsibilities, the charge of the Committee shall include

- A. Reviewing and making recommendations to the Board on the following matters:
  1. University operating budget and financial plan;
  2. University capital budget and master facility plans;
  3. capital projects;
  4. tuition, fees and housing rates;
  5. state appropriation requests;
  6. pursuant to applicable Collected Rules and Regulations, contracts and reports;
  7. insurance brokers and self-insurance programs;
  8. pursuant to applicable Collected Rules and Regulations, real estate sales, purchases, leases, easements and right-of-way agreements;
  9. the issuance of debt;
  10. asset allocation guidelines and other policies related to the University's investment management function; and
  11. additional matters customarily addressed by the finance committee of a governing board for an institution of higher education.
- B. Providing governance oversight to:
  1. long-range financial planning strategies;
  2. fundraising and development strategies;
  3. total indebtedness and debt capacity of the University;
  4. the investment portfolio performance; and
  5. the financial condition of the pension fund.
- C. Reviewing periodic reports including:
  1. quarterly and year-end financial reports that measure the University's fiscal condition;
  2. annual purchasing reports on bids and equipment leases;

3. quarterly debt-management reports;
4. quarterly and year-end investment performance reports;
5. semi-annual reports on development and fundraising activities; and
6. other financial reports as requested by the Committee.

Fiscal Year 2023 Investment Performance Review  
UM

Highlights of the enclosed Fiscal Year 2023 Investment Review will be presented at the September meeting of the Finance Committee of the Board of Curators. Also enclosed is an annual investments review letter from Verus, the University's General Investment Consultant.

The Collected Rules and Regulations require annual performance reporting to the Board for each of the following investment pools:

Retirement Plan	Represents the invested assets of the University's defined benefit plan, which serves more than 30,000 members.
Endowment Pool	Holds more than 6,400 endowment accounts from across the UM System.
General Pool	Contains the cash, reserves and invested assets of more than 25,000 unique operating units within the UM System.

# Investment Performance Review

FISCAL YEAR  
*2023*



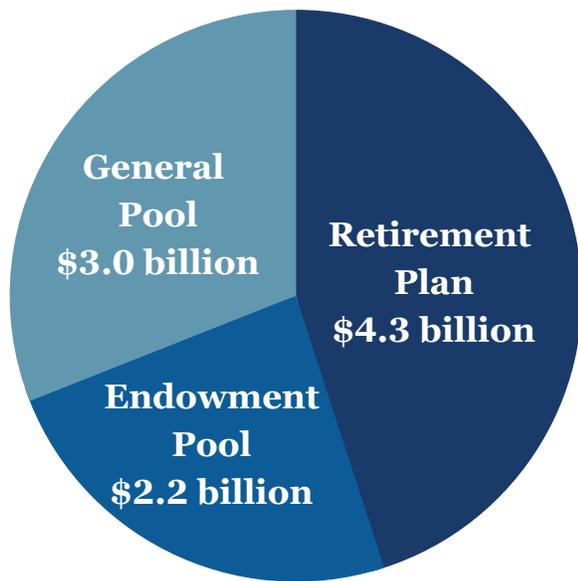
University of Missouri System  
COLUMBIA | KANSAS CITY | ROLLA | ST. LOUIS

# FY23 INVESTMENT SUMMARY

## THREE YEAR PERFORMANCE

Retirement	Annualized 3-Year Return	9.7%	
	Policy Benchmark	7.7%	\$223 million outperformance
	Peer Universe Median	7.3%	\$332 million outperformance
	60/40 Global Passive	5.5%	\$516 million outperformance

Endowment	Annualized 3-Year Return	10.1%	
	Policy Benchmark	8.5%	\$85 million outperformance
	Peer Universe Median	7.0%	\$234 million outperformance
	60/40 Global Passive	5.5%	\$280 million outperformance



## MAKING AN IMPACT

**\$312 million**

Retiree Benefit Payments

**\$87 million**

Scholarships / Faculty Funding

**\$15 million**

Strategic Funding



7

Office of  
Investment staff



2

Investment  
Interns



4

National Awards /  
Recognitions

## TEAMWORK



We partner with 80 investment management firms across 174 discrete investment strategies



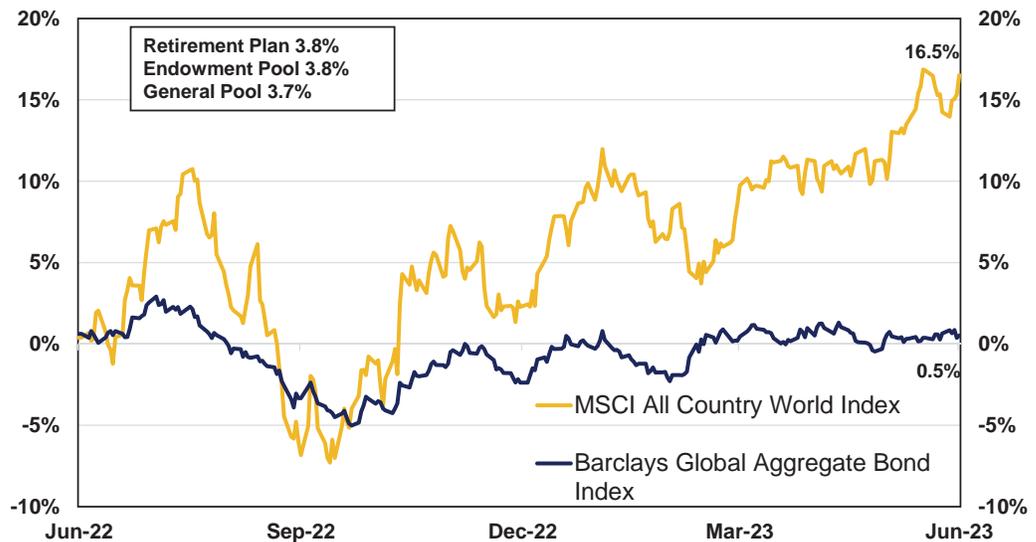
In FY23, we invested / committed \$1.1 billion to 22 discrete investment strategies

## Update from the Chief Investment Officer

As investors struggled to understand the Federal Reserve’s path for interest rate setting, frequent shifts in investor sentiment were reflected by wild market fluctuations throughout the year. Would the aggressive actions taken by the Fed result in a “hard-landing” (a painful recession) or a “soft-landing” (a mild slowdown in growth sufficient to bring inflation under control)? Or maybe a “no landing” (however defined by CNBC)? In some sense, these gyrations continue to be understandable as very few of today’s investors managed money in the late 1970s to early 1980s, which is the last period in which the Fed had to aggressively fight inflation.

More specific to public markets, global equities were up 16.5% for the year, led primarily by Europe and the US. Most of the gains were made during the last three quarters of the fiscal year, when the odds of a soft-landing scenario started to improve, fueled by slowing inflationary trends, strong labor reports, and decelerating wage growth. Global equities had been

### Cumulative Financial Market Returns - FY2023



Source: Bloomberg

down 6.8% during the first quarter of the year, as fear of “higher-for-longer” borrowing costs stoked further fears of stagflation (persistent high inflation combined with high unemployment and stagnant demand in an economy).

U.S. Government bonds, both Nominal and Inflation-Linked were down 1.0% and 0.9%, respectively, as investors shifted from safe-haven to more risky assets in light of the apparent resiliency of the U.S. economy. The 10-year Treasury yield rose an additional 0.8% to finish the fiscal year at 3.8%, despite a strong rally (drop) in government rates in March 2023 as the stability of the financial system was called into question by a few notable bank failures.

Over the last 12 months, the Bloomberg commodity index lost 9.6%, with most of the loss attributable to two main themes within the energy sector: 1) a warmer than normal winter and resulting high storage levels caused a steep decline in natural gas prices; and 2) oil prices dropped on recessionary fears amid a slowing global economy and demand destruction following record-high prices.

As the U.S. labor market remains strong and the disinflation story continues to take hold of financial markets, the soft-landing view continues to dominate financial markets today, favoring risky assets at the expense of safe-haven assets. In periods like this, we would expect our portfolios to underperform relative to peers with more aggressive asset allocation schemes. As a reminder, the investment objectives for both the Retirement Plan and Endowment Pool state the following: investments shall be

managed in a manner that maximizes returns while attempting to minimize losses during adverse economic events. Put another way, we are willing to forgo some occasional upside return for more protection in down markets. As expected, we underperformed peers in FY23 as markets favored risky assets. In contrast, we significantly outperformed peers in FY22 when markets were challenging. We continue to maintain confidence in this approach and feel that we are well positioned moving into FY24.

Specific to execution and policy implementation, achieved through strategy selection and tactical portfolio positioning, we underperformed relative to policy benchmarks in FY23 by 0.4% and 0.6% for Retirement and Endowment, respectively. The underperformance was driven primarily by two factors: 1) a slight underweight to public equities throughout most of the year; and 2) within public equities, an overweight to emerging markets which underperformed relative to developed markets. Over a broader three-year period, we remain comfortably above policy benchmark performance by 2.0% and 1.6% in Retirement and Endowment, respectively. Translated into dollars, this equates to approximately \$308 million in aggregate value add over the past three years. General Pool performance exceeded its policy benchmark by 2.3% and 2.2% over one and three years, respectively, which translates into approximately \$192 million in value add over the past three years.

Performance against policy benchmarks is our primary measure of accountability, as it reflects the implementation of the investment policies approved by the Board of Curators. While peer performance or comparisons to things like a generic

“60/40” portfolio are not directly relevant to measuring our own success, they do help us to understand if our asset allocation policies are working as intended. As noted above, our asset allocation strategy performed as expected in both FY22 and FY23 relative to peers. Taking a longer perspective over the past three years combined, both Retirement and Endowment delivered significant outperformance against respective peer universes and a global passive 60/40 portfolio, resulting in approximate aggregate value add of \$566 million and \$796 million, respectively.

Moving into FY24, current uncertainties will remain until two interconnected things resolve: 1) the end of Fed tightening and some visibility into how long the Fed maintains rates at these levels; and 2) seeing if the economy can endure the burden of higher rates without slipping into a recession. Regardless of what happens, we remain confident that our investment strategy continues to meet our long term investment objectives.

<b>Retirement Plan</b>	<b>1 Year</b>	<b>3 Year</b>
Actual Return	3.8%	9.7%
Policy Benchmark	4.2%	7.7%
% Excess Return	-0.4%	2.0%
\$ Excess Value	(\$20 million)	\$223 million
Public Pension Peer Median*	9.1%	7.3%
% Excess Return	-5.3%	2.4%
\$ Excess Value	(\$233 million)	\$332 million
60/40 Global Passive Portfolio	9.9%	5.5%
% Excess Return	-6.1%	4.2%
\$ Excess Value	(\$261 million)	\$516 million
<b>Endowment Pool</b>	<b>1 Year</b>	<b>3 Year</b>
Actual Return	3.8%	10.1%
Policy Benchmark	4.4%	8.5%
% Excess Return	-0.6%	1.6%
\$ Excess Value	(\$15 million)	\$85 million
Endowment Peer Universe Median*	9.5%	7.0%
% Excess Return	-5.7%	3.1%
\$ Excess Value	(\$122 million)	\$234 million
60/40 Global Passive Portfolio	9.9%	5.5%
% Excess Return	-6.1%	4.6%
\$ Excess Value	(\$135 million)	\$280 million
<b>General Pool</b>	<b>1 Year</b>	<b>3 Year</b>
Actual Return	3.7%	2.8%
Policy Benchmark	1.4%	0.6%
% Excess Return	2.3%	2.2%
\$ Excess Value	\$66 million	\$192 million
<i>*Investment Metrics Peer Data</i>		
Public Pensions	416	406
Endowments	403	368



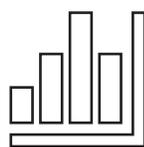
## Retirement Plan



Participants  
30,986



Assets  
\$4.3 billion



FY 2023  
Performance  
3.8%

### Rollforward Activity

Beginning Balance	4,285,000,000
Contributions – Employer/Employee	146,000,000
Benefit Payments	(312,000,000)
Investment Income	152,000,000
Ending Balance	4,271,000,000

The University’s Retirement, Disability and Death Benefit Plan, commonly referred to as the Retirement Plan, is a defined benefit pension plan established to provide retirement income and other stipulated benefits to qualified employees. A trust was established in 1958 and is funded to provide the financial security of those benefits.

The primary objective to be achieved in the active management of Retirement Plan assets is to provide for the full and timely payment of retirement, disability and death benefits to qualified plan participants. In order to fulfill this objective the University must maintain a prudent, actuarially sound funding of the Plan’s liabilities. Funding for the Retirement Plan is derived from three principal sources: the total investment return on Retirement Plan assets, University employer and employee contributions.

### Investment Performance

	1 Year	3 Years	5 Years	7 Years	10 Years
Actual	3.8%	9.7%	7.0%	8.4%	7.5%
Benchmark	4.2%	7.7%	6.5%	7.2%	6.8%
Excess Return	-0.4%	2.0%	0.5%	1.2%	0.7%

### Investment Performance

Asset Class	Mix	Total Return One Year	Benchmark	Excess Return	Contribution to Return*
Public Equity	35.3%	12.9%	16.5%	-3.6%	3.6%
US Treasuries	8.0%	2.0%	-1.0%	3.0%	0.2%
Inflation-Linked Bonds	9.0%	4.1%	-0.9%	5.0%	0.5%
Commodities	5.0%	-8.0%	-8.3%	0.3%	-0.4%
Risk Balanced	14.0%	-0.4%	-0.4%	0.0%	-0.1%
Cash/Other	0.6%	3.9%	3.6%	0.3%	0.1%
<b>Public Markets</b>	<b>71.9%</b>	<b>5.4%</b>	<b>7.1%</b>	<b>-1.7%</b>	<b>-</b>
Private Equity	12.2%	-1.1%	-5.2%	4.1%	-0.1%
Private Debt	5.4%	6.2%	3.5%	2.7%	0.3%
Real Estate	10.5%	0.5%	-3.9%	4.4%	0.0%
<b>Private Markets</b>	<b>28.1%</b>	<b>0.8%</b>	<b>-2.8%</b>	<b>3.6%</b>	<b>-</b>
<b>Total Beta Portfolio</b>	<b>100.0%</b>	<b>4.1%</b>	<b>4.2%</b>	<b>-0.1%</b>	<b>4.1%</b>
Alpha Portfolio	-	-1.3%	-	-	-0.3%
<b>Total Portfolio</b>	<b>100.0%</b>	<b>3.8%</b>	<b>4.2%</b>	<b>-0.4%</b>	<b>3.8%</b>

\*Contribution to Total Return is a function of asset class return and weighting within the investment portfolio. As an example, US Treasuries returned 2% for the year at an average portfolio weight of 8% (2%\*8%=0.2%). Based on this analysis, we can see that Public Equity was the largest return driver, while Commodities was the biggest detractor.



## Public Equities

The public equity portfolio, while positive for the year, lagged its policy benchmark. The primary cause for the portfolio underperformance was an overexposure to emerging markets, which trailed the policy benchmark by 14.8%. Emerging markets were negatively impacted by China's Zero COVID policy during the early part of the fiscal year, followed by a post lock-down economy which remains weaker than investor expectations. Another reason for public equities underperformance was a slight value tilt within the portfolio. Value has significantly underperformed growth since the beginning of 2023, as growth stocks have been propelled by the artificial intelligence craze which significantly boosted tech stocks, along with a general expectation of loosening monetary policy in early 2024 (in very general terms, due to the discounting of distant future cash flows, growth stocks tend to do better in falling rate environments than rising rate environments).

<b>Market Value</b>	<b>\$1,506,000,000</b>
Portfolio Weight	35.3%
One Year Return	12.9%
Benchmark Return	16.5%

distant future cash flows, growth stocks tend to do better in falling rate environments than rising rate environments).

## US Treasuries



<b>Market Value</b>	<b>\$342,000,000</b>
Portfolio Weight	8.0%
One Year Return	2.0%
Benchmark Return	-1.0%

## US Inflation-Linked Bonds



<b>Market Value</b>	<b>\$384,000,000</b>
Portfolio Weight	9.0%
One Year Return	4.1%
Benchmark Return	-0.9%

US Treasuries and Inflation-Linked Bonds exceeded their policy benchmarks by 3.0% and 5.0%, respectively. The investment staff adopted a defensive stance on U.S. Treasuries and Inflation-Linked Bonds during the first six months of the fiscal year, maintaining a lower duration relative to their respective benchmarks. These tactical decisions helped US Treasuries and Inflation-Linked Bonds generate approximately \$11 million and \$21 million of additional income above benchmark returns, respectively. As of the end of the fiscal year, these tactical duration underweights had been removed.



## Commodities

Commodities slightly outperformed its policy benchmark, driven by defensive positioning within the actively managed sleeve of the portfolio. In the FY22 performance update, we expressed skepticism about a continued commodity rally into FY23, despite continued underinvestment in supply while demand continues to grow. Acting on that view, we added a highly active manager that has consistently outperformed the commodity benchmark in periods of adverse commodity markets since 2003.

<b>Market Value</b>	<b>\$212,000,000</b>
Portfolio Weight	5.0%
One Year Return	-8.0%
Benchmark Return	-8.3%

## Risk Balanced

Risk Balanced performance was slightly negative, as three of the four underlying asset class exposures had negative performance. Risk Balanced contains diversified exposures to public equities, nominal bonds, inflation-linked bonds, and commodities. Over the past year, the positive contribution to performance from public equities was offset by negative performance from commodities, nominal bonds, and inflation-linked bonds. Fortunately, through the tailored strategies we have implemented in the past few years, we were able to easily outperform the broader asset class, as evidenced by a loss of 3.2% for the HFRI Risk Parity index, a common industry proxy for the asset class.

Risk Balanced seeks to balance the contribution to risk from each asset class that composes a diversified portfolio. A traditional portfolio, comprised of 60% equity / 40% fixed income, is not diversified from a perspective of investment risk, as approximately 90% of the change in portfolio value is driven by the 60% capital allocation to equities. Risk Balanced seeks to avoid this concentration of equity risk through the construction of a truly diversified portfolio, spreading risk exposure equally across each sector of the portfolio.

<b>Market Value</b>	<b>\$597,000,000</b>
Portfolio Weight	14.0%
One Year Return	-0.4%
Benchmark Return	-0.4%



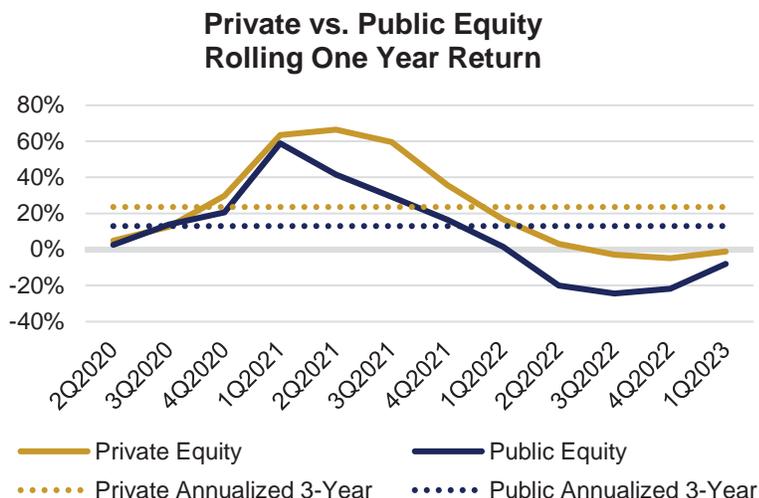
## Portable Alpha

The Portable Alpha portfolio returned 2.5% before accounting for the costs of financing related to the derivative market beta exposures which fund the program. This performance was in line with expectations given specific market shifts which occurred during the year. However, portfolio performance was not enough to cover the costs of financing, which are generally driven by the Federal Funds rate plus a spread of approximately 30 basis points. While the financing spread has remained relatively constant over the life of the program, the Federal Funds rate has grown rapidly, moving from 1.6% in June 2022 to 5.1% in June 2023, as the Federal Reserve continues to get inflation under control. For perspective, the portable alpha portfolio returned 7.5% in FY22, with financing costs of just 0.3%, resulting in a net return of 7.2%.

<b>Market Value</b>	<b>\$956,000,000</b>
Portfolio Weight	22.4%
One Year Return	-1.3%
Expected Return	5.6%

## Private Markets

*Note: Private market asset classes report changes in valuation (i.e. performance) once per quarter on a one quarter lag. This means that the performance reported for private markets through June 30, 2023 is based on March 31, 2023 valuations. This one-quarter lag in reporting is common among institutional investors.*



Over the past year, we have expected private markets to reprice to lower valuations. Across the industry, repricing had been slowed significantly by the near absence of transactions taking place in 2022, particularly in private equity and real estate. As you can see in the adjacent chart, public equity valuations fell sharply starting in 2021 while private equity lagged by multiple quarters. Recently, transactions have begun to pick up, providing relevant market comps needed for more current asset valuations. While we expect it to take several quarters for valuations to normalize, we are pleased with how our portfolios are performing compared to the broader markets.



## Private Equity

Private equity outperformed its benchmark by 4.1%; however, on an absolute basis, the allocation lost 1.1% over the one-year period. As we stated in previous investment updates, we expected portfolio performance to turn negative this year. Negative returns within the portfolio were driven by venture capital as it went through significant repricing. The buyout portfolio remained modestly positive for the period providing a positive offset to venture capital.

<b>Market Value</b>	<b>\$519,000,000</b>
Portfolio Weight	12.2%
One Year Return	-1.1%
Benchmark Return	-5.2%

Private equity is measured over a longer time horizon to determine a successful portfolio. The UM private equity allocation continues to outperform their benchmark in the three, five, seven, ten, and fifteen year periods. Comparatively, private equity has outperformed public equity for the ten-year annualized period by 7.6%.



## Private Debt

Private debt outperformed its benchmark by 2.7%. Investments in direct lending and senior equity drove the outperformance. The largest contribution came from a direct lending strategy focused on the shipping industry. This investment is led by a highly experienced team with deep industry contacts. This experience has been proven in the performance of the fund, as they are able to quickly shift their focus and secure deals across various maritime sectors as opportunities arose during the onset of the COVID-19 crisis, the evolving energy supply landscape, and the ongoing pressure across various regional and global banks.

<b>Market Value</b>	<b>\$231,000,000</b>
Portfolio Weight	5.4%
One Year Return	6.2%
Benchmark Return	3.5%

Over the coming year, higher interest rates and market uncertainty could create headwinds for some existing investments. Increased interest rates, higher operating costs and inflation could all impact some companies ability to manage debt service payments . While an increase in default rates could lead to additional repricing within existing portfolio investments, we have built a portfolio of diversified managers with strong credit experience and underwriting standards that we believe can navigate through uncertain market conditions and help minimize potential losses.

These same economic conditions are also presenting new investment opportunities within multiple sectors of private debt. Attractive yields and favorable bargaining power on financing terms are very beneficial to private debt investors. Real estate credit as well as opportunistic funds that take advantage of market dislocations are two sectors we believe will benefit from the current market environment and will continue to be a focus in the coming year.



## Real Estate

Real estate outperformed its benchmark by 4.4%. We are pleased to see the outperformance in a challenging real estate market. Looking toward the coming year, it is likely real estate will continue to face headwinds from the higher cost of capital and access to the capital markets, causing valuations in many market sectors to turn negative.

<b>Market Value</b>	<b>\$451,000,000</b>
Portfolio Weight	10.5%
One Year Return	0.5%
Benchmark Return	-3.9%

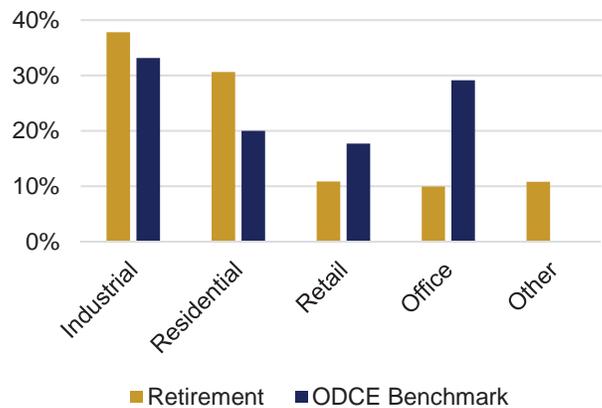
Several years ago, the investment team made a conscious decision to lean more heavily into industrial, residential (multi-family) and niche property types over retail and office. This decision is evident in the chart showing the largest holdings in residential and industrial as retail and office continue to shrink. A big unknown in real estate is the fate of the office sector and what office will look like in the future. Although we do not know how this story will end, we do expect office valuations to

go significantly lower as valuations are slowly repriced based on actual transaction activity.

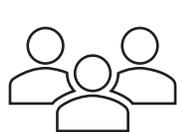
Currently, the Retirement Plan's real estate weighting to office is less than half of the policy benchmark weighting. Furthermore, office real estate represents only 1% of the overall Retirement Plan. The remaining office positions are well diversified by investment size, type of office and geography. It is expected that the office holdings will have more losers than winners, but we are confident that the steps we have taken will reduce our risk relative to the broader real estate market.

Success in real estate is measured over a longer time horizon. Real estate continues to outperform the benchmark in the three, five, seven, and ten year periods.

**Property Type: UM vs Benchmark**



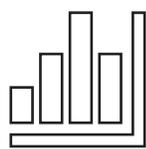
## Endowment Pool



Endowments  
6,400



Assets  
\$2.2 billion



FY 2023  
Performance  
3.8%

### Rollforward Activity

Beginning Balance	2,144,000,000
Contributions	96,000,000
Distributions	(87,000,000)
Investment Income	81,000,000
Ending Balance	2,234,000,000

The University's Endowment Pool contains gifts, bequests, and other funds directed to be used to support university programs.

The Endowment Pool must be managed to provide ongoing support of endowed programs in perpetuity, in conformance with donor stipulations. To accomplish this, investment returns, net of inflation, should be sufficient over time to cover annual spending distributions while maintaining or growing the underlying purchasing power of each endowed gift.

### Investment Performance

	1 Year	3 Years	5 Years	7 Years	10 Years
Actual	3.8%	10.1%	7.4%	8.5%	7.7%
Benchmark	4.4%	8.5%	7.0%	7.8%	7.4%
Excess Return	-0.6%	1.6%	0.4%	0.7%	0.3%

### Investment Performance

Asset Class	Mix	Total Return One Year	Benchmark	Excess Return	Contribution to Return*
Public Equity	37.2%	13.0%	16.5%	-3.5%	3.9%
US Treasuries	9.0%	2.0%	-1.0%	3.0%	0.2%
Inflation-Linked Bonds	10.0%	4.0%	-0.9%	4.9%	0.4%
Commodities	2.7%	-7.9%	-9.6%	1.7%	-0.2%
Risk Balanced	13.0%	-0.4%	-0.4%	0.0%	-0.1%
Cash/Other	1.7%	3.7%	3.6%	0.1%	0.2%
<b>Public Markets</b>	<b>73.6%</b>	<b>6.0%</b>	<b>7.5%</b>	<b>-1.5%</b>	<b>-</b>
Private Equity	12.6%	-4.7%	-6.9%	2.2%	-0.6%
Real Estate	8.3%	-0.8%	-3.9%	3.1%	-0.1%
Private Debt	5.5%	7.6%	2.5%	5.1%	0.4%
<b>Private Markets</b>	<b>26.4%</b>	<b>-1.1%</b>	<b>-3.9%</b>	<b>2.8%</b>	<b>-</b>
<b>Total Beta Portfolio</b>	<b>100.0%</b>	<b>4.1%</b>	<b>4.4%</b>	<b>-0.3%</b>	<b>4.1%</b>
Alpha Portfolio	-	-1.2%	-	-	-0.3%
<b>Total Portfolio</b>	<b>100.0%</b>	<b>3.8%</b>	<b>4.4%</b>	<b>-0.6%</b>	<b>3.8%</b>

\*Contribution to Total Return is a function of asset class return and weighting within the investment portfolio. As an example, US Treasuries returned 2% for the year at an average portfolio weight of 9% (2%\*9%=0.2%). Based on this analysis, we can see that Public Equity was the largest return driver, while Private Equity was the biggest detractor.



## Public Equities

The public equity portfolio, while positive for the year, lagged its policy benchmark. The primary cause for the portfolio underperformance was an overexposure to emerging markets, which trailed the policy benchmark by 14.8%. Emerging markets were negatively impacted by China's Zero COVID policy during the early part of the fiscal year, followed by a post lock-down economy which remains weaker than investor expectations. Another reason for public equities underperformance was a slight value tilt within the portfolio. Value has significantly underperformed growth since the beginning of 2023, as growth stocks have been propelled by the artificial intelligence craze which significantly boosted tech stocks, along with a general expectation of loosening monetary policy in early 2024 (in very general terms, due to the discounting of

<b>Market Value</b>	<b>\$832,000,000</b>
Portfolio Weight	37.2%
One Year Return	13.0%
Benchmark Return	16.5%

distant future cash flows, growth stocks tend to do better in falling rate environments than rising rate environments).

## US Treasuries



<b>Market Value</b>	<b>\$201,000,000</b>
Portfolio Weight	9.0%
One Year Return	2.0%
Benchmark Return	-1.0%

## Inflation-Linked Bonds



<b>Market Value</b>	<b>\$224,000,000</b>
Portfolio Weight	10.0%
One Year Return	4.0%
Benchmark Return	-0.9%

US Treasuries and Inflation-Linked Bonds exceeded their policy benchmarks by 3.0% and 4.9%, respectively. The investment staff adopted a defensive stance on U.S. Treasuries and Inflation-Linked Bonds during the first six months of the fiscal year, maintaining a lower duration relative to their respective benchmarks. These tactical decisions helped US Treasuries and Inflation-Linked Bonds generate approximately \$7 million and \$10 million of additional income above benchmark returns, respectively. As of the end of the fiscal year, these tactical duration underweights had been removed.



## Commodities

Commodities slightly outperformed its policy benchmark, driven by a defensive positioning within the actively managed sleeve of the portfolio. In the FY22 performance update, we expressed skepticism about a continued commodity rally, despite continued underinvestment in supply while demand continues to grow. Acting on that view, we added a highly active manager that has consistently outperformed the commodity benchmark in periods of adverse commodity markets since 2003.

<b>Market Value</b>	<b>\$60,000,000</b>
Portfolio Weight	2.7%
One Year Return	-7.9%
Benchmark Return	-9.6%

## Risk Balanced

Risk Balanced performance was slightly negative, as three of the four underlying asset class exposures had negative performance. Risk Balanced contains diversified exposures to public equities, nominal bonds, inflation-linked bonds, and commodities. Over the past year, the positive contribution to performance from public equities was offset by negative performance from commodities, nominal bonds, and inflation-linked bonds. Fortunately, through the tailored strategies we have implemented in the past few years, we were able to easily outperform the broader asset class, as evidenced by a loss of 3.2% for the HFRI Risk Parity index, a common industry proxy for the asset class.



Risk Balanced seeks to balance the contribution to risk from each asset class that composes a diversified portfolio. A traditional portfolio, comprised of 60% equity / 40% fixed income, is not diversified from a perspective of investment risk, as approximately 90% of the change in portfolio value is driven by the 60% capital allocation to equities. Risk Balanced seeks to avoid this concentration of equity risk through the construction of a truly diversified portfolio, spreading risk exposure equally across each sector of the portfolio.

<b>Market Value</b>	<b>\$289,000,000</b>
Portfolio Weight	12.9%
One Year Return	-0.4%
Benchmark Return	-0.4%



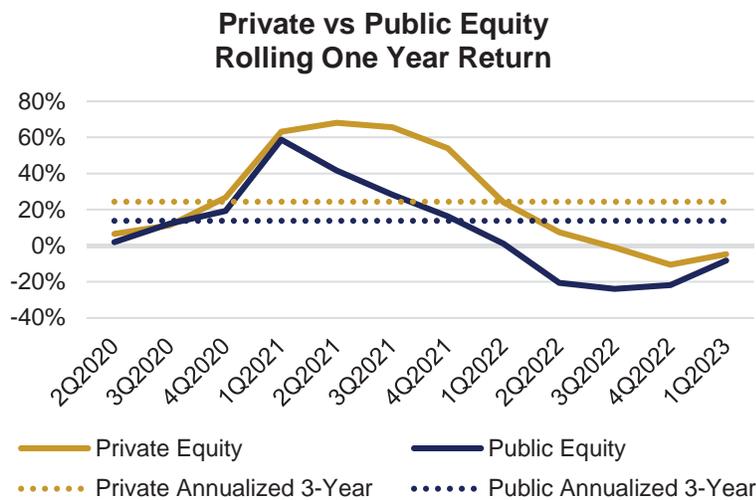
## Portable Alpha

The Portable Alpha portfolio returned 2.6% before accounting for the costs of financing related to the derivative market beta exposures which fund the program. This performance was in line with expectations given specific market shifts which occurred during the year. However, portfolio performance was not enough to cover the costs of financing, which are generally driven by the Federal Funds rate plus a spread of approximately 30 basis points. While the financing spread has remained relatively constant over the life of the program, the Federal Funds rate has grown rapidly, moving from 1.6% in June 2022 to 5.1% in June 2023, as the Federal Reserve continues to get inflation under control. For perspective, the portable alpha portfolio returned 7.0% in FY22, with a financing cost of just 0.3%, resulting in a net return of 6.7%.

<b>Market Value</b>	<b>\$454,000,000</b>
Portfolio Weight	20.3%
One Year Return	-1.2%
Expected Return	5.6%

## Private Markets

*Note: Private market asset classes report changes in valuation (i.e. performance) once per quarter on a one quarter lag. This means that the performance reported for private markets through June 30, 2023 is based on March 31, 2023 valuations. This one-quarter lag in reporting is common among institutional investors.*



Over the past year, we have expected private markets to reprice to lower valuations. Across the industry, repricing had been slowed significantly by the near absence of transactions taking place in 2022, particularly in private equity and real estate. As you can see in the adjacent chart, public equity valuations fell sharply starting in 2021 while private equity lagged by multiple quarters. Recently, transactions have begun to pick up, providing relevant market comps needed for more current asset valuations. While we expect it to take several quarters for valuations to normalize, we are pleased with how our portfolios are performing compared to the broader markets.

## Private Equity

Private equity outperformed its benchmark by 2.2%; however, on an absolute basis, the allocation lost 4.7% over the one-year period. As we stated in previous investment updates, we expected portfolio performance to turn negative this year. Negative returns within the portfolio were driven by venture capital as it went through significant repricing. The buyout portfolio remained modestly positive for the period providing a positive offset to venture capital.

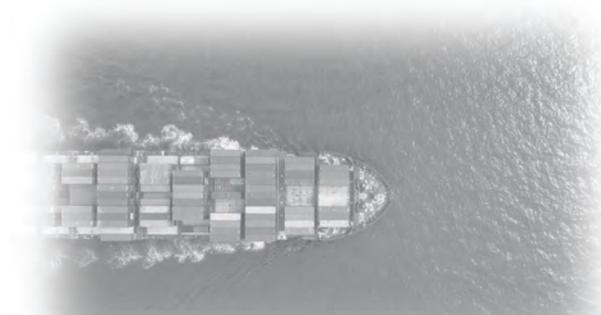


<b>Market Value</b>	<b>\$283,000,000</b>
Portfolio Weight	12.6%
One Year Return	-4.7%
Benchmark Return	-6.9%

Private equity is measured over a longer time horizon to determine a successful portfolio. The UM private equity allocation continues to outperform their benchmark in the three, five, seven, ten, and fifteen year periods. Comparatively, private equity has outperformed public equity for the ten-year annualized period by 8.1%.

## Private Debt

Private debt outperformed its benchmark by 5.1%. Investments in direct lending and senior equity drove the outperformance. The largest contribution came from a direct lending strategy focused on the shipping industry. This investment is led by a highly experienced team with deep industry contacts. This experience has been proven in the performance of the fund, as they are able to quickly shift their focus and secure deals across various maritime sectors as opportunities arose during the onset of the COVID-19 crisis, the evolving energy supply landscape, and the ongoing pressure across various regional and global banks.



<b>Market Value</b>	<b>\$122,000,000</b>
Portfolio Weight	5.5%
One Year Return	7.6%
Benchmark Return	2.5%

Over the coming year, higher interest rates and market uncertainty could create headwinds for some existing investments. Increased interest rates, higher operating costs and inflation could all impact some companies ability to manage debt service payments. While an increase in default rates could lead to additional repricing within existing portfolio investments, we have built a portfolio of diversified managers with strong credit experience and underwriting standards that we believe can navigate through uncertain market conditions and help minimize potential losses.

These same economic conditions are also presenting new investment opportunities within multiple sectors of private debt. Attractive yields and favorable bargaining power on financing terms are very beneficial to private debt investors. Real estate credit as well as opportunistic funds that take advantage of market dislocations are two sectors we believe will benefit from the current market environment and will continue to be a focus in the coming year.



## Real Estate

Real estate outperformed its benchmark by 3.1%. We are pleased to see the outperformance in a challenging real estate market. Looking toward the coming year, it is likely real estate will continue to face headwinds from the higher cost of capital and access to the capital markets, causing valuations in many market sectors to turn negative.

<b>Market Value</b>	<b>\$185,000,000</b>
Portfolio Weight	8.3%
One Year Return	-0.8%
Benchmark Return	-3.9%

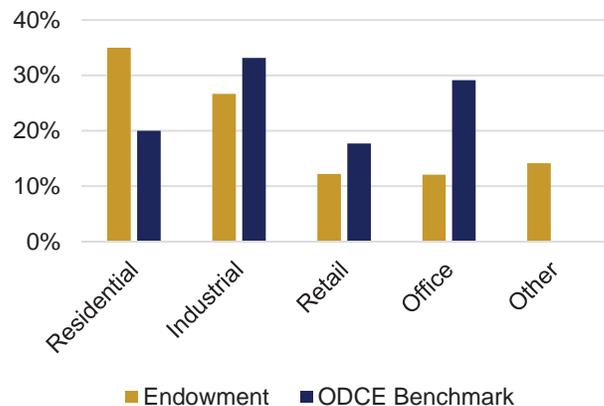
Several years ago, the investment team made a conscious decision to lean more heavily into industrial, residential (multi-family) and niche property types over retail and office. This decision is evident in the chart showing the largest holdings in residential and industrial as retail and office continue to shrink. A big unknown in real estate is the fate of the office sector and what office will look like in the future. Although we do not know

how this story will end, we do expect office valuations to go significantly lower as valuations are slowly repriced based on actual transaction activity.

Currently, the Endowment Pool's real estate weighting to office is less than half of the policy benchmark weighting. Furthermore, office real estate represents only 1% of the overall Endowment Pool. The remaining office positions are well diversified by investment size, type of office and geography. It is expected that the office holdings will have more losers than winners, but we are confident that the steps we have taken will reduce our risk relative to the broader real estate market.

Success in real estate is measured over a longer time horizon. Real estate continues to outperform the benchmark in the three, five, seven, and ten year periods.

**Property Type: UM vs Benchmark**



## General Pool

The General Pool represents the University's cash and reserves, both restricted and unrestricted, including, but not limited to, operating funds, auxiliary funds, service operations funds, self-insurance funds, debt service funds and plant funds. The General Pool is managed in a way that both recognizes and balances the underlying needs of the pool, including, but not limited to, accommodation of University cash flow cyclicality, satisfaction of various ongoing liquidity needs, maximization of risk adjusted investment returns, diversification and preservation of capital.

Investment Performance					
	1 Year	3 Years	5 Years	7 Years	10 Years
Actual	3.7%	2.8%	2.4%	2.7%	2.7%
Benchmark	1.4%	0.6%	2.1%	1.9%	2.1%
Excess Return	2.3%	2.2%	0.3%	0.8%	0.6%

Investment Performance					
Asset Class	Mix	Total Return One Year	Benchmark	Excess Return	Contribution to Return*
Liquidity Portfolio	47.4%	4.2%	3.7%	0.5%	2.1%
Core Portfolio	26.8%	1.9%	-0.6%	2.5%	0.6%
Strategic Portfolio	25.8%	4.4%	1.6%	2.8%	1.1%
Risk Balanced	12.4%	0.1%	0.1%	0.0%	-
Private Debt	13.1%	9.4%	3.8%	5.6%	-
Real Estate	0.2%	-3.4%	-	-	-
Private Equity	0.1%	-	-	-	-
<b>Total Beta Portfolio</b>	<b>100.0%</b>	<b>3.8%</b>	<b>1.4%</b>	<b>2.4%</b>	<b>3.8%</b>
Alpha Portfolio	-	-1.1%	-	-	-0.1%
<b>Total Portfolio</b>	<b>100.0%</b>	<b>3.7%</b>	<b>1.4%</b>	<b>2.3%</b>	<b>3.7%</b>

\*Contribution to Total Return is a function of asset class return and weighting within the investment portfolio. As an example, the Strategic Portfolio returned 4.4% for the year at an average portfolio weight of 25.8% (4.4%\*25.8%=1.1%). Based on this analysis, we can see that the Liquidity Portfolio was the largest return driver, while the Core Portfolio was the smallest contributor.

During FY22, global bond markets experienced the largest drawdown in over 30 years. In the midst of that event, the investment team began a fairly aggressive repositioning of the portfolio, dramatically reducing credit risk and interest rate risk. Nearly one-half of the entire portfolio is now deployed primarily in risk-free U.S. Treasury Bills. This defensive positioning benefited the General Pool as short-term rates continued to rise following the Federal Reserve rate hikes over the past year, with the 3 Month Treasury Bill climbing 3.75% to a yield of almost 5.5% at June 30, 2023. Overall, the General Pool returned 3.7% in FY23, outperforming its benchmark by 2.3%.

Within the General Pool, the Core Portfolio returned 1.9%, exceeding the policy benchmark by 2.5%. As interest rates increased and credit spreads tightened during the fiscal year, our active managers took positions which boosted returns relative to the benchmark.

Risk Balanced performance returned 0.1%, held up by a sharp recovery in public equities. Risk Balanced contains diversified exposures to public equities, nominal bonds, inflation-linked bonds, and commodities. Over the past year, the positive contribution to performance from public equities

was offset by negative performance from commodities, nominal bonds, and inflation-linked bonds. Fortunately, through the tailored strategies we have implemented in the past few years, we were able to easily outperform the broader asset class, as evidenced by a loss of 3.2% for the HFRI Risk Parity index, a common industry proxy for the asset class.

Private debt returned 9.4%, led by investments in direct lending. The largest contribution came from a direct lending strategy focused on the shipping industry. This investment is led by a highly experienced team with deep industry contacts. This experience has been proven in the performance of the fund, as they are able to quickly shift their focus and secure deals across various maritime sectors as opportunities arose during the onset of the COVID-19 crisis, the evolving energy supply landscape, and the ongoing pressure across various regional and global banks.

Portable Alpha portfolio lost 1.1%, before accounting for the costs of financing related to the derivative market beta exposures which fund the program. This performance was in line with expectations given specific market shifts which occurred during the year. Given its narrow manager mix, the General pool performance differed from that of the Retirement and Endowment. The General pool alpha portfolio was different because we started to build it halfway into the fiscal year, by adding high conviction managers to which both Retirement and Endowment have already exposure to. However, the negative performance of the portfolio was exacerbated by the costs of financing, which are generally driven by the Federal Funds rate plus a spread of approximately 30 basis points. While the financing spread has remained relatively constant since the beginning of the year 2023, the Federal Funds rate has grown from 3.8% in December 2022 to 5.1% in June 2023, as the Federal Reserve continues to get inflation under control.

# Appendices

## Management Fees: Retirement Plan

	Calendar Year 2022				
	Average Balance	% Total Portfolio	Mgt Fee (\$)	Mgt Fee (%)	Portfolio Attribution
Public Markets					
Public Equity	1,426,290,424	32.53%	3,556,753	0.25%	0.08%
US Treasuries	356,298,698	8.13%	16,021	0.00%	0.00%
Inflation-Linked Bonds	453,955,852	10.35%	191,358	0.04%	0.00%
Commodities	359,505,412	8.20%	431,339	0.12%	0.01%
Risk Balanced	601,356,284	13.71%	2,563,995	0.43%	0.06%
Cash	63,106,591	1.43%	-	0.00%	0.00%
Total Public Markets	<u>3,260,513,261</u>	<u>74.35%</u>	<u>6,759,465</u>	<u>0.21%</u>	<u>0.15%</u>
Private Markets					
Private Equity	507,067,927	11.54%	7,013,669	1.38%	0.16%
Private Debt	222,527,719	5.07%	3,039,344	1.37%	0.07%
Real Estate	396,130,293	9.04%	4,971,723	1.26%	0.12%
Total Private Markets	<u>1,125,725,939</u>	<u>25.65%</u>	<u>15,024,735</u>	<u>1.33%</u>	<u>0.35%</u>
<b>Total Retirement Plan - Beta Portfolio</b>	<b><u>4,386,239,200</u></b>	<b><u>100.00%</u></b>	<b><u>21,784,201</u></b>	<b><u>0.50%</u></b>	<b><u>0.50%</u></b>
Portable Alpha Portfolio	979,514,957	22.33%	13,937,581	1.42%	0.31%
Other Investment Management Expenses					
Custodial Services			723,396	0.02%	0.02%
Investment Consulting			244,254	0.01%	0.01%
Professional Services (Legal and Tax)			103,309	0.00%	0.00%
Office of Investments			550,907	0.01%	0.01%
Total Other Investment Management Expenses			<u>1,621,866</u>	<u>0.04%</u>	<u>0.04%</u>
<b>Total Retirement Plan Management Expense</b>			<b><u>37,343,648</u></b>	<b><u>0.85%</u></b>	<b><u>0.85%</u></b>

- Consistent with the objectives defined in our investment policies, investments are managed in a manner that maximizes returns, net of fees, while attempting to minimize losses during adverse economic events. While we strive to minimize fees when possible, fee considerations are always secondary to return and risk considerations.
- Performance and projection data are always presented net of fees.
- Our most recent fee benchmarking analysis found peer median costs to be 0.64% for a traditional portfolio. Excluding portable alpha, our most recent “traditional portfolio” costs were 0.54% (0.50% Beta Portfolio + 0.04% Other Investment Management Expenses).

## Management Fees: Endowment Pool

	Calendar Year 2022				
	Average Balance	% Total Portfolio	Mgt Fee (\$)	Mgt Fee (%)	Portfolio Attribution
Public Markets					
Public Equity	762,997,636	34.25%	1,866,976	0.24%	0.08%
US Treasuries	177,555,602	7.97%	12,400	0.01%	0.00%
Inflation-Linked Bonds	227,413,734	10.21%	93,278	0.04%	0.00%
Commodities	154,276,841	6.93%	220,412	0.14%	0.01%
Risk Balanced	283,801,775	12.74%	1,167,028	0.41%	0.06%
Cash	35,094,302	1.58%	-	0.00%	0.00%
Total Public Markets	<u>1,641,139,890</u>	<u>73.67%</u>	<u>3,360,094</u>	<u>0.20%</u>	<u>0.15%</u>
Private Markets					
Private Equity	286,610,000	12.87%	3,859,426	1.35%	0.17%
Private Debt	116,841,573	5.25%	1,543,826	1.32%	0.07%
Real Estate	182,986,294	8.21%	2,374,753	1.30%	0.11%
Total Private Markets	<u>586,437,868</u>	<u>26.33%</u>	<u>7,778,005</u>	<u>1.33%</u>	<u>0.35%</u>
<b>Total Endowment Pool - Beta Portfolio</b>	<b><u>2,227,577,758</u></b>	<b><u>100.00%</u></b>	<b><u>11,138,099</u></b>	<b><u>0.50%</u></b>	<b><u>0.50%</u></b>
Portable Alpha Portfolio	467,882,139	21.00%	6,678,432	1.43%	0.30%
Other Investment Management Expenses					
Custodial Services			723,396	0.04%	0.04%
Investment Consulting			244,254	0.01%	0.01%
Professional Services (Legal and Tax)			110,423	0.00%	0.00%
Office of Investments			550,907	0.02%	0.02%
Total Other Investment Management Expenses			<u>1,628,980</u>	<u>0.07%</u>	<u>0.07%</u>
<b>Total Endowment Pool Management Expense</b>			<b><u>19,445,511</u></b>	<b><u>0.87%</u></b>	<b><u>0.87%</u></b>

- Consistent with the objectives defined in our investment policies, investments are managed in a manner that maximizes returns, net of fees, while attempting to minimize losses during adverse economic events. While we strive to minimize fees when possible, fee considerations are always secondary to return and risk considerations.
- Performance and projection data are always presented net of fees.

## Management Fees: General Pool

Calendar Year 2022					
	Average Balance	% Total Portfolio	Mgt Fee (\$)	Mgt Fee (%)	Portfolio Attribution
Liquidity Portfolio	1,266,241,201	41.29%	1,397,206	0.11%	0.04%
Core Portfolio	947,060,956	30.88%	4,485,082	0.47%	0.15%
Strategic Portfolio	853,479,548	27.83%	6,699,800	0.78%	0.22%
<b>Total General Pool</b>	<b>3,066,781,704</b>	<b>100.00%</b>	<b>12,582,088</b>	<b>0.41%</b>	<b>0.41%</b>
Other Investment Management Expenses					
Custodial Services			361,698	0.01%	0.01%
Investment Consulting			122,127	0.00%	0.00%
Professional Services (Legal and Tax)			5,515	0.00%	0.00%
Office of Investments			275,453	0.01%	0.01%
Total Other Investment Management Expenses			<u>764,793</u>	<u>0.02%</u>	<u>0.02%</u>
<b>Total General Pool Management Expense</b>			<b><u>13,346,881</u></b>	<b><u>0.43%</u></b>	<b><u>0.43%</u></b>

- Consistent with investment policy, the General Pool is managed in a way that both recognizes and balances the underlying needs of the pool, including, but not limited to, accommodation of University cash flow cyclicalities, satisfaction of various ongoing liquidity needs, maximization of risk-adjusted investment returns, diversification, and preservation of capital. While we strive to minimize fees when possible, fee considerations are always secondary to these investment objectives.
- Performance and projection data are always presented net of fees.

## Investment Manager Activity

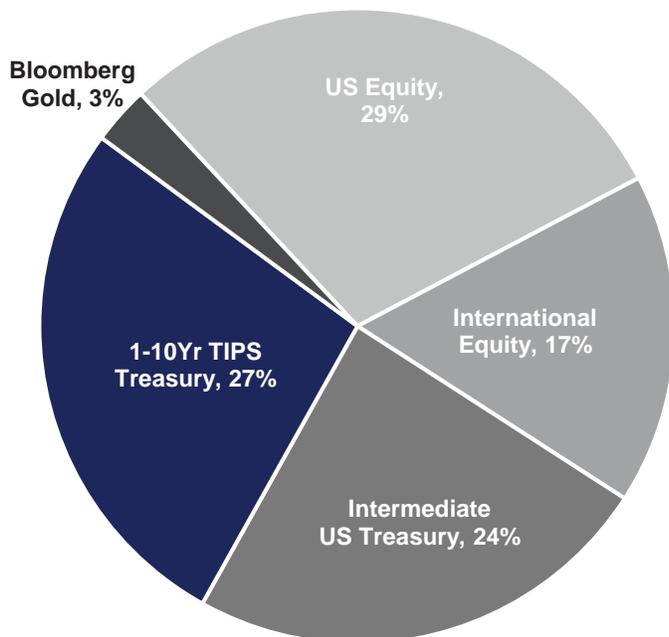
Fiscal Year 2023

Manager	Action	Total Investment (in millions)	Portfolio
<b>Public Equity</b>			
Sector Global Emerging Markets Fund (Cusana)	Hire	\$75	Ret/End
<b>Commodities</b>			
Pinnacle Natural Resources	Hire	\$25	Ret/End
<b>Private Equity</b>			
Altas Partners Holdings III	Hire	\$30	Ret/End
Bernhard Capital Partners "BCP" III, L.P.	Hire	\$30	Ret/End
Eclipse Early Growth II, LP	Hire	\$10	Ret/End
Eclipse Fund V, LP	Hire	\$18	Ret/End
Entrust Global BlueOcean 4Impact	Hire	\$10	Ret/End
Scale Venture Studio, LP	Hire	\$1	GP
<b>Real Estate</b>			
DRA Fund XI	Hire	\$50	Ret/End/GP
Stockbridge Value Fund V	Hire	\$50	Ret/End/GP
Angelo Gordon Realty Value Fund XI	Hire	\$50	Ret/End/GP
<b>Private Debt</b>			
Angelo Gordon Dislocation Fund	Hire	\$75	Ret/End/GP
Davidson Kempner Opportunities Fund VI	Hire	\$75	Ret/End/GP
PIMCO Corporate Opportunities Fund IV	Hire	\$70	Ret/End/GP
Rialto Real Estate Debt Fund	Hire	\$75	Ret/End/GP
Sixth Street Tao	Hire	\$30	Ret/End
<b>Portable Alpha</b>			
Blackstone BAAM 1839	Hire	\$200	Ret/End
Brevan Howard Alpha Strategies	Hire	\$30	GP
Brevan Howard Dislocation Fund	Hire	\$64	Ret/End
Bridgewater Pure Alpha	Hire	\$17	GP
DE Shaw Lithic Fund	Hire	\$108	GP
Garda FIRVO	Hire	\$30	GP
<b>Total New Investment</b>		<b>\$1,123</b>	
<b>Terminations</b>			
Doubleline Multi-Stratgy Master (Core Portfolio)	Term	\$213	GP
Maniyar Macro Fund (Portable Alpha)	Term	\$79	Ret/End
Davidson Kempner (Portable Alpha)	Term	\$138	Ret/End
Brook Global Emerging Markets (Public Equity)	Term	\$72	Ret/End
Millennium Global Investments (Public Equity)	Term	\$551	Ret/End
<b>Total Terminations</b>		<b>\$1,053</b>	

## Portable Alpha Program - Retirement Plan

As of 6/30/2023

### Funding Mix for Portable Alpha Program



### Alpha Portfolio Liquidity

Redemption Period	Actual	Policy
3 Months	67%	20%
6 Months	75%	50%
9 Months	88%	
12 Months	97%	

*Note: This represents, on a cumulative basis, the ability to redeem alpha portfolio investments for cash. For example, 75% of the alpha portfolio can be redeemed for cash within six months.*

### Alpha Portfolio Performance

	1 Year	3 Year
Performance	2.5%	5.8%
Financing Cost	3.8%	1.5%
Performance, Net of Financing Cost	-1.3%	4.3%

*Note: Cost of financing for portable alpha program is driven by the Federal Funds rate plus a spread of approximately 30bp.*

### Summary of Stress Test Results

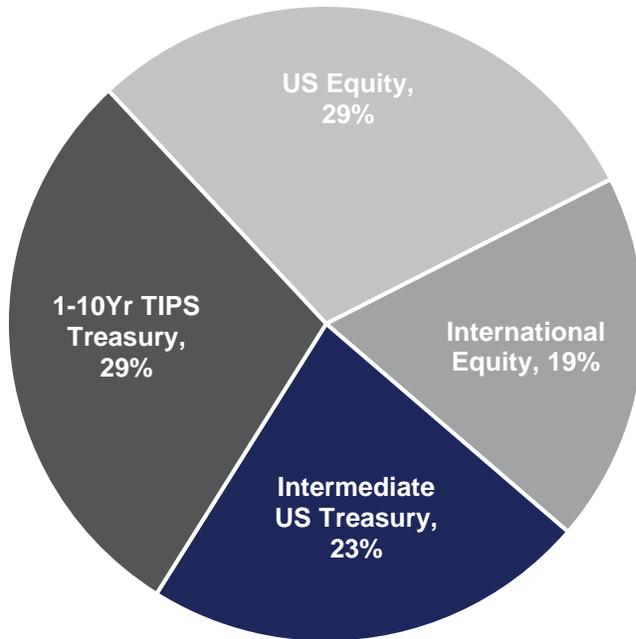
Market Stress Scenarios	Performance in five worst market stress scenarios						Cash Drawdown
	US Equity	Intl. Equity	Interm. US Treasury	1-10Yr TIPS Treasury	Blmberg Gold	Total Portfolio	
2008 Financial Crisis	-47%	-52%	7%	-6%	-1%	-22%	22%
2022 Inflation Shock	-25%	-26%	-9%	-9%	-9%	-16%	16%
2021-2022 Bond Rout	-17%	-23%	-11%	-8%	-11%	-14%	14%
1987 Black Monday	-30%	-15%	2%	1%	9%	-10%	10%
2020 COVID-19 Crisis	-20%	-22%	4%	-1%	1%	-9%	9%
Average Cash Drawdown (A)							14%
Margin of Safety (B)							10%
Total Required Cash Margin (C) = (A) + (B)							24%
Actual Cash Margin as of 06/30/2023							28%

*Note: CRR 140.017 "Policy for Allowable Investments" governs the overall management of the Portable Alpha Program, including specific cash margin requirements.*

## Portable Alpha Program - Endowment Pool

As of 6/30/2023

### Funding Mix for Portable Alpha Program



### Alpha Portfolio Liquidity

Redemption Period	Actual	Policy
3 Months	67%	20%
6 Months	75%	50%
9 Months	89%	
12 Months	97%	

*Note: This represents, on a cumulative basis, the ability to redeem alpha portfolio investments for cash. For example, 75% of the alpha portfolio can be redeemed for cash within six months.*

### Alpha Portfolio Performance

	1 Year	3 Year
Performance	2.6%	5.7%
Financing Cost	3.8%	1.5%
Performance, Net of Financing Cost	-1.2%	4.2%

*Note: Cost of financing for portable alpha program is driven by the Federal Funds rate plus a spread of approximately 30bp.*

### Summary of Stress Test Results

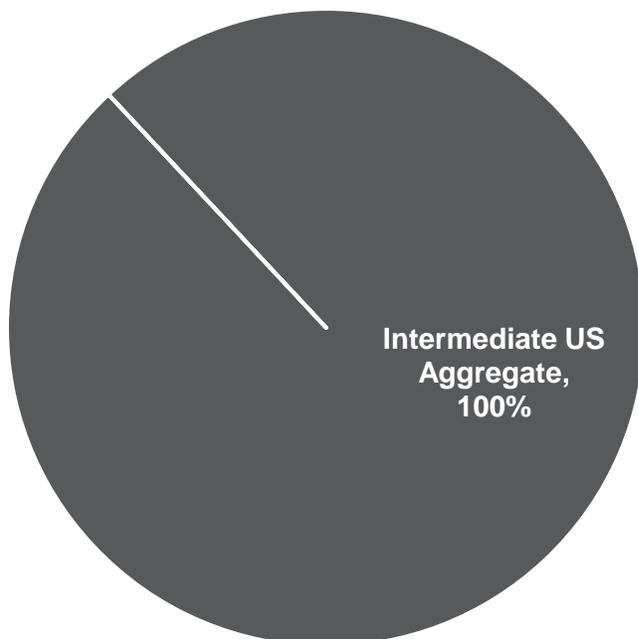
Market stress scenarios	Performance in five worst market stress scenarios					Cash Drawdown
	US Equity	Intl. Equity	Interm. US Treasury	1-10Yr TIPS Treasury	Total Portfolio	
2008 Financial Crisis	-47%	-52%	7%	-6%	-24%	24%
2022 Inflation Shock	-25%	-26%	-9%	-9%	-17%	17%
2021-2022 Bond Rout	-17%	-23%	-11%	-8%	-14%	14%
1987 Black Monday	-30 %	-15%	2%	1%	-11%	11%
2020 COVID-19 Crisis	-20%	-22%	4%	-1%	-9%	9%
Average Required Cash Margin (A)						15%
Margin of Safety (B)						10%
Total Required Cash Margin (C) = (A) + (B)						25%
Actual Cash Margin as of 06/30/2023						39%

*Note: CRR 140.017 "Policy for Allowable Investments" governs the overall management of the Portable Alpha Program, including specific cash margin requirements.*

## Portable Alpha Program - General Pool

As of 6/30/2023

### Funding Mix for Portable Alpha Program



### Alpha Portfolio Liquidity

Redemption Period	Actual	Policy
3 Months	52%	20%
6 Months	63%	50%
9 Months	84%	
12 Months	95%	

*Note: This represents, on a cumulative basis, the ability to redeem alpha portfolio investments for cash. For example, 75% of the alpha portfolio can be redeemed for cash within six months.*

### Alpha Portfolio Performance

	1 Year
Performance	-1.1%
Financing Cost	2.8%
Performance, Net of Financing Cost	-3.9%

*Note: Cost of financing for portable alpha program is driven by the Federal Funds rate plus a spread of approximately 30bp.*

### Summary of Stress Test Results

Market stress scenarios	Performance in five worst market stress scenarios		Cash Drawdown
	Interm. US Aggregate	Total Portfolio	
2021-2022 Bond Rout	-13%	-13%	13%
2013 Taper Tantrum	-3%	-3%	3%
2003 Treasuries Sell-Off	-3%	-3%	3%
2016 Post US Election	-2%	-2%	2%
2020 Post COVID Rate Rise	-1%	-1%	1%
Average Required Cash Margin (A)			4%
Margin of Safety (B)			5%
Total Required Cash Margin (C) = (A) + (B)			9%
Actual Cash Margin as of 06/30/2023			15%

*Note: CRR 140.017 "Policy for Allowable Investments" governs the overall management of the Portable Alpha Program, including specific cash margin requirements.*

## Asset Allocation Policy Targets

	Retirement Plan	Endowment Pool
Public Equity	34%	35%
Private Equity	13%	15%
Public Debt – U.S. Treasuries	8%	8%
Public Debt – Inflation-Linked Bonds (U.S. TIPS)	9%	10%
Private Debt	6%	7%
Risk Balanced	12%	12%
Commodities	5%	3%
Real Estate	13%	10%
	100%	100%
	General Pool	
	Minimum Allocation	Maximum Allocation
Liquidity Portfolio	20%	100%
Core Portfolio	0%	60%
Strategic Portfolio	0%	45%

## Policy Target Transition Plan

Retirement Plan	Jul- 22	Oct- 22	Jan- 23	Apr- 23	Jul- 23	Oct- 23	Jan- 24	Apr- 24	Jul- 24	Oct- 24
Private Equity	11%	12%	12%	12%	12%	13%				
Public Equity	36%	35%	35%	35%	35%	34%				
Real Estate	9%	10%	10%	11%	11%	12%	12%	12%	12%	13%
Risk Balanced	15%	15%	15%	14%	14%	13%	13%	13%	13%	12%
Endowment Pool	Jul- 22	Oct- 22	Jan- 23	Apr- 23	Jul- 23	Oct- 23	Jan- 24	Apr- 24	Jul- 24	Oct- 24
Private Equity	13%	13%	13%	14%	14%	15%				
Public Equity	37%	37%	37%	36%	36%	35%				
Private Debt	5%	6%	6%	6%	6%	7%				
US Treasuries	10%	9%	9%	9%	9%	8%				
Real Estate	8%	9%	9%	9%	9%	10%				
Risk Balanced	14%	13%	13%	13%	13%	12%				

## Summary of Policy Benchmarks

### Public Equity

Benchmark	MSCI ACWI Net Total Return USD Index
Bloomberg Ticker	NDUEACWF Index

*The MSCI ACWI index captures large and mid-cap representation across 23 Developed Markets (DM) and 24 Emerging Markets (EM) countries. With nearly 2,800 constituents, the index covers approximately 85% of the global investable equity opportunity set.*

### Private Equity

Benchmark - Retirement	70% Burgiss US Buyout & Other Private Equity 30% Burgiss US Venture Capital
Benchmark - Endowment	60% Burgiss US Buyout & Other Private Equity 40% Burgiss US Venture Capital
Bloomberg Ticker	not applicable

*The Burgiss private equity database contains the historical and ongoing performance records of private equity funds around the world. The University will focus on the US private equity buyout and other private equity database and the US venture capital database that includes over 2,700 funds with \$2.1 trillion total capitalization. Data is sourced exclusively from its member Limited Partners (i.e., primarily the institutional investors in private markets.) The database contains only institutional quality funds, providing investors with performance data consistent with their investable opportunity set. The Burgiss database is believed to be the most comprehensive, accurate representation of the aggregate US private equity market. Index returns are reported on a one-quarter lag.*

### U.S. Treasuries

Benchmark	Bloomberg Barclays US Intermediate Treasury Total Return Index Unhedged USD
Bloomberg Ticker	LT08TRUU Index

*The Bloomberg Barclays US Intermediate Treasury Index measures US dollar-denominated, fixed-rate, nominal debt issued by the US Treasury with maturities of 1 to 9.999 years to maturity.*

### Inflation-Linked Bonds (U.S. TIPS)

Benchmark	Bloomberg Barclays US Treasury Inflation-Linked 1-10 Years (Series L) Total Return Index
Bloomberg Ticker	LT11TRUU Index

*The Bloomberg Barclays US Treasury Inflation-Linked Bond 1-10 Years Index measures the performance of the US TIPS market for all bonds with a remaining final maturity from 1.0 to 9.9 years.*

### Private Debt

Benchmark	S&P/LSTA Leveraged Loan Total Return Index
Bloomberg Ticker	SPBDAL Index

*The S&P/LSTA Index is a market value weighted index designed to measure the performance of the US leveraged loan market based upon market weightings, spreads and interest payments. Index returns are reported on a lag corresponding with manager reporting cycles.*

## **Risk Balanced**

Benchmark                      Benchmark equal to actual performance  
Bloomberg Ticker            not applicable

*Within Risk Balanced there is no set industry accepted benchmark. Managers implement what they believe is their best “version” of risk parity, which can lead to a wide range of investments. These variations lead to short term tracking error and noise that is not meaningful to the overall performance review of risk parity as an asset class. As such, the best course of action for short-term performance reporting is to neutralize these issues by setting the policy benchmark equal to actual performance.*

## **Commodities**

Benchmark                      Bloomberg Commodity Index Total Return  
Bloomberg Ticker            BCOMTR Index

*The Bloomberg Commodity Index Total Return is composed of futures contracts and reflects the returns on a fully collateralized investment in the Bloomberg Commodity Index (BCOM), which combines the returns of the BCOM with the returns on cash collateral invested in 13-week US Treasury Bills. The BCOM rebalances annually weighted 2/3 by trading volume and 1/3 by world production with weight-caps applied at the commodity, sector and group level for diversification. As compared to the S&P GSCI Commodity Index, the BCOM has much less energy exposure (~59% vs. ~30%).*

## **Real Estate**

Benchmark                      NCREIF-ODCE Index (National Council of Real Estate Investment  
Fiduciaries – Open End Diversified Core Equity Index)  
Bloomberg Ticker            not applicable

*NCREIF-ODCE is a capitalization-weighted return index made up of 36 open-ended core real estate funds. Open-ended funds are generally defined as infinite-life vehicles consisting of multiple investors who have the ability to enter or exit on a periodic basis, subject to contribution and/or redemption requests, thereby providing a degree of potential investment liquidity. The benchmark is reported on a one-quarter lag.*

## **General Pool**

### **Liquidity Portfolio**

Benchmark                      Bloomberg Short Treasury: 1 – 3 Months Total Return Index Unhedged  
Bloomberg Ticker            I00225US Index

*The Bloomberg Short Treasury Index measures US dollar-denominated US Treasury Bills with maturities of 1 to 3 months to maturity.*

### **Core Portfolio**

Benchmark                      Bloomberg US Aggregate Intermediate  
Bloomberg Ticker            I00002US Index

*The Bloomberg Intermediate US Aggregate Bond Index is a broad-based flagship benchmark that measures the investment grade, US dollar-denominated, fixed-rate taxable bond market with less than 10 years to maturity. The securitized sector is wholly included. The index includes Treasuries, government-related and corporate securities, MBS, ABS and CMBS.*

## Strategic Portfolio

### *Risk Balanced*

Benchmark                      Benchmark equal to actual performance  
Bloomberg Ticker              not applicable

*Within Risk Balanced there is no set industry accepted benchmark. Managers implement what they believe is their best “version” of risk parity, which can lead to a wide range of investments. These variations lead to short term tracking error and noise that is not meaningful to the overall performance review of risk parity as an asset class. As such, the best course of action for short-term performance reporting is to neutralize these issues by setting the policy benchmark equal to actual performance.*

### *Private Debt*

Benchmark                      S&P/LSTA Leveraged Loan Total Return Index  
Bloomberg Ticker              SPBDAL Index

*The S&P/LSTA Index is a market value weighted index designed to measure the performance of the US leveraged loan market based upon market weightings, spreads and interest payments. Index returns are reported on a lag corresponding with manager reporting cycles.*

# OFFICE OF INVESTMENTS

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[www.umssystem.edu](http://www.umssystem.edu)



## University of Missouri System

COLUMBIA | KANSAS CITY | ROLLA | ST. LOUIS



August 10, 2023

**To the Honorable Todd P. Graves, Chair, Finance Committee**  
**The Honorable Robert W. Fry**  
**The Honorable Jeff L. Layman**  
**The Honorable Robin R. Wenneker**

University of Missouri Board of Curators  
316 University Hall  
Columbia, Missouri 65211-3020

Verus is pleased to provide the University of Missouri Board of Curators with a brief overview of the performance of the Retirement Plan (“Retirement”) and the Endowment Pool (“Endowment”), highlights of our engagement with the University of Missouri investment staff during the fiscal year ended June 30, 2023, and our summary of the Market Environment.

#### **Plan Performance<sup>1</sup>**

Total return over the fiscal year was moderately positive for both Retirement and Endowment at 3.8% for both funds (net of fees). This year’s relative performance was a reversal of last year’s, with Retirement underperforming its benchmark by 0.4%, and Endowment underperforming by 0.6%. Peer rankings also flipped, with Retirement ranking in the 98<sup>th</sup> percentile (1<sup>st</sup> percentile last year) relative to other public defined benefit plans (1<sup>st</sup> is highest returning and 99<sup>th</sup> is lowest). The Endowment ranked in the 93<sup>rd</sup> percentile this year (2<sup>nd</sup> percentile last year) relative to other endowment plans. These fluctuations in relative results were expected and were primarily driven by the asset allocation of both funds, which makes them relatively uncorrelated with both the public markets and their average peer.

Asset class performance was also largely a reversal from the previous fiscal year, thereby illustrating the benefits of diversification. Last year, commodities and private markets strategies served to mitigate poor public equity results. This year, public equities contributed the most to the funds’ positive total returns. Private equity returns tend to lag those of the public markets, and (true to form) Retirement’s private equity portfolio posted a return of -1.1% for the fiscal year, while Endowment’s portfolio posted a -4.7% return. By contrast, the public equity portfolios returned 12.9% and 13.0% in the Retirement Fund and Endowment Pool, respectively.

The intermediate (5-year) and long-term (10-year) results of both portfolios remain in line with the University’s objectives, with Retirement returning 7.0% (net) over 5 years (22<sup>nd</sup> percentile) and 7.5% (net) over 10 years (32<sup>nd</sup> percentile). Endowment returned 7.4% (net) over 5 years (8<sup>th</sup> percentile) and 7.7% (net) over 10 years (12<sup>th</sup> percentile).

## **Plan Activity**

Through the pandemic and its aftermath, Verus worked closely with the Chief Investment Officer and his staff to validate and refine the long-term strategic investment plans of the University's major investment pools. This year, however, our work can best be characterized as helping to strengthen the implementation of those strategic plans. This primarily took the form of several refinements to the Portable Alpha investment manager line-up. We kicked off the year with a risk analysis of the Portable Alpha portfolio, with an eye to right-sizing the allocation of capital among the underlying strategies. During the fiscal year, two strategies which were no longer considered to be high conviction were terminated, and carefully selected new strategies were added. Among these is an innovative fund designed to both systematically capture alternative risk premia and to opportunistically profit from major market dislocations. Also this year, the diversifying benefits of the Portable Alpha program were extended to the General Pool, which should help mitigate the interest rate risk inherent to an income-oriented portfolio.

Alternative strategies were also strengthened outside the Portable Alpha program. One of the lessons of the pandemic was the need for more active management in risk balanced strategies, as unprecedented action by central banks served to weaken the traditional role of fixed income in offsetting crisis risk. Verus was pleased to work with the investment team in transitioning to a new more active version of one of the University's existing risk balanced strategies. This existing manager is well-qualified to incorporate the lessons learned during these extraordinary years.

Verus also spent the year helping to sustain the University's private markets portfolios, recommending a few select additions to a strategic allocation that has been a robust source of long-term investment returns to the University. On the public markets side, this year the University was finally able to allocate capital to a talented emerging markets equity team that had long struggled to find a new home at a stable and supportive parent company. We expect that the staff's patience and investment of time will be rewarded with a new source of additive long-term active return.

Looking forward, our work in progress includes a thorough review and update of the investment policy statements contained within the University's Collected Rules and Regulations. These policies govern the investment of the major investment pools, including the Endowment Pool, the General Pool, and the Retirement Plan as serve as a strong governance foundation for the management of the University's assets.

## **Market Environment**

Risk assets delivered a strong start to calendar year 2023, building off the positive momentum seen towards the end of 2022. Year-to-date performance was positive across all major asset classes outside of commodities, as was performance on a one-year basis. Despite the challenging outlook presented in our last letter, economic growth proved to be resilient, despite an ending to the large amount of stimulus introduced in response to the pandemic, and quickly rising interest rates. While earlier in 2023 many economists had forecast a U.S. recession in mid to late summer (especially after a series of regional bank failures, notably Silicon Valley Bank and First Republic), sentiment eased considerably as the prospect of a "soft-landing" was revived. Falling headline inflation, resilient labor market data, and the first rate pause from the Federal Reserve all contributed to a more positive macroeconomic outlook.

Despite the strong first half of calendar 2023, challenges remain going forward. Within the U.S., inflation is still a concern. The Federal Reserve continues to face difficult policy decisions as inflation, while lower, sits above the two-percent target and economic and labor market strength persists. The FOMC paused rate hikes in June, but markets are pricing in as many as two additional hikes before the end of the current tightening cycle. Overseas, growth in advanced economies remains stunted as many central banks continue their battle against inflation. Within emerging markets, the loudest narrative has centered on China. Reopening after the pandemic provided a material boost to activity, though positive momentum has been overshadowed by mounting geopolitical tension with the United States, a lack of broader accommodative stimulus from Beijing, and a hobbling real estate market.

## U.S. Equity

Shares in the U.S. outperformed relative to international developed and emerging market counterparts across both the calendar year-to-date and fiscal year timeframe. The S&P 500 index rose by an outstanding 19.6% over the trailing one-year period, driven by strength seen in 2023 (16.9% gain year-to-date). Many expected a higher rate environment and slowing domestic consumer to be a ceiling on domestic equity prices, especially following the regional bank failures. This ceiling was quickly shattered as the prospect and development of artificial intelligence (AI) technology boosted the already technology-heavy S&P 500 index.

The significant movements of heavyweight technology names are apparent when looking at size and style factors. Large-cap equities significantly outperformed over the one-year, with the Russell 1000 index gaining 19.4% relative to a 12.3% increase in the Russell 2000 index. Growth handily outperformed value, with the Russell 1000 Growth index rising 27.1% from last year compared to an 11.5% gain from the Russell 1000 Value index.

While U.S. shares have outperformed, the earnings story remains uncertain. Per FactSet, S&P 500 companies are on track for their third straight quarter of year-over-year earnings decline. The expected decline of -7.0% in Q2 2023 reflects a volatile business environment. While earnings expectations are rosier going forward, recent gains seen from U.S. equities are by no means an indicator that the Federal Reserve has successfully achieved a “soft-landing” for the economy.

## International Equity

International share performance lagged that of the U.S. shares. The technology-related gains were primarily captured by large U.S. firms. Despite this relative underperformance, both international developed and emerging market shares saw absolute gains on a one-year horizon. The MSCI EAFE index increased 18.8% year-over-year, while the MSCI EM index posted a meager 1.7% gain.

International developed shares rebounded in Q4 of 2022, and this momentum carried into 2023, driven by strength from both European and Japanese shares. The STOXX 50, which represents the 50 largest companies in Europe, rose 36.3% from the prior year. While Europe continues to face tighter central bank policies due to high inflation (June 2023 CPI came in at 5.5% year-over-year), resilience was much better than expected, especially in comparison to the negative sentiment following Russia’s invasion of Ukraine. Japanese equities also saw strong performance

due to a combination of positive economic growth, inflation (Japan has sought higher inflation for many years), and a potential shift regarding foreign shareholder prioritization. Gains in Japanese equities were mostly achieved in 2023. The TOPIX index increased 25.9% over the year-to-date, making up most of the 31.2% one-year gain.

China dominated the narrative in emerging markets, as emerging market shares initially outperformed on enthusiasm around the country's reopening. This reopening momentum turned out to be short-lived, as negative sentiment quickly overshadowed the move away from an almost three-year "zero-covid" policy. It appears that two primary factors contributed to losses for Chinese shares. The first was a smaller-than-expected reopening wave of economic activity, with no substantial monetary or fiscal stimulus used to accelerate the reopening. This contrasted sharply to the large amounts of stimulus used in the U.S. and Europe. This smaller-than-expected reopening wave provided no reprieve to the already struggling real estate market. The second factor was growing geopolitical tension with the United States. A series of events, including a spy balloon being shot down over U.S. airspace, continued to bolster negative relations between the two global leaders, which likely hurt foreign investor sentiment. The MSCI China index fell -5.5% over the year-to-date, further adding to the -16.8% loss seen over the one-year period.

### Fixed Income

Inflation and Federal Reserve action continued to be the dominant driver of fixed income performance over the past year. With the bulk of Federal Reserve rate hikes occurring in the second half of 2022, bonds received the brunt of the pain over the 2022 calendar year (Bloomberg U.S. Aggregate down -13.0%). The Federal Reserve continued to increase rates in response to inflation in 2023, but at a considerably slower pace. The upper bound of the Fed's target rate moved from 4.50% to 5.25% over the 2023 year-to-date period. Smaller hikes were likely in response to strong signs of falling inflation, as headline CPI fell to 3.0% in June of 2023. While the FOMC decided to pause their rate hikes at the June meeting, commentary from Federal Reserve Chairman Powell was very explicit that pausing was not a signal of the end of the tightening cycle.

Positive performance in 2023 has heled to improve one-year performance for the fixed income complex. Core fixed income (Bloomberg U.S. Aggregate) saw a 2.1% gain over the year-to-date period, bringing the one-year loss to -0.9%. In terms of duration, short maturity U.S. treasuries outperformed, with the Bloomberg U.S. Treasury 1-3 Year index gaining 0.1% over the one-year, compared to -2.1% and -6.8% losses from the U.S. Treasury index and U.S. Treasury Long index, respectively.

Expectations for worsening credit conditions may have reached a peak earlier in the year following the regional bank failures, as many investors expected a material pull back in credit availability. While high-yield bond and leveraged loan default rates have reached a two-year high per J.P. Morgan, the broader credit spectrum has performed strongly over the one-year period. Emerging market debt in local currency (+11.4%) was the best performer, followed by leveraged loans (+10.1%), high-yield bonds (+9.1%), and hard currency emerging market debt (+7.4%). Credit spreads compressed in the first half of calendar 2023, with the average option-adjusted spread for high-yield and investment grade bonds sitting at 390 basis points and 123 basis points, respectively. It has been surprising to see credit spread remain at low levels,

despite recent rises in bond default activity, and expectations that defaults will continue to rise into 2024.

## Commodities

In 2022, there was two major stories in the commodities space. First, the rapid increase in energy and grain prices — much of this due to Russia’s invasion of Ukraine — was an igniting factor for global inflation issues. The second story was commodity performance. Commodities were one of the few asset classes to post a positive return during the 2022 calendar year, and the asset dominated the narrative in 2022 with some market participants calling for a new booming commodity cycle. However, commodities ended up playing a much smaller role in 2023, as a combination of easing supply pressures and lower demand hurt price performance. The Bloomberg Commodity index fell -7.8% over the first half of 2023, driving the -9.6% one-year loss in the index.

## **Conclusion**

We at Verus value our relationship with the University of Missouri and we appreciate the privilege of working with the Board of Curators and staff in designing policies and supporting decisions aimed at meeting the University’s investment objectives. We remain confident in the direction of the portfolios given the University’s unique objectives, its fiscal strength, and its well-designed investment strategies. We look forward to continuing our partnership as we navigate ever-changing capital markets.

Sincerely,



Jeffrey J. MacLean  
Chief Executive Officer

cc: Members of the University of Missouri Board of Curators

<sup>1</sup> Rates of return are net of fees and based on calculations made by the System's custodian, Northern Trust, and are presented using a time weighted rate of return methodology based upon fair value.

University of Missouri System  
Board of Curators  
Finance Committee

September 7, 2023

**FY2023 Investment Performance Review**  
**UM**

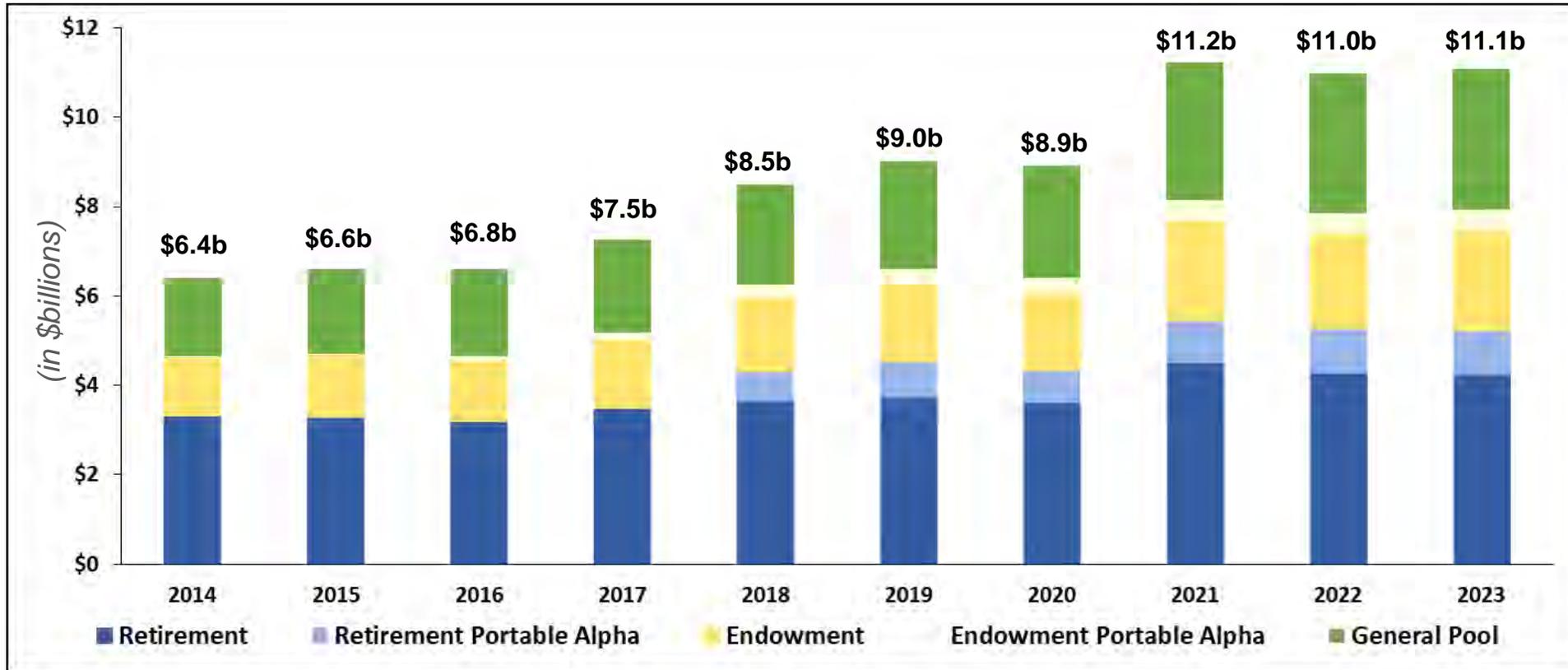


# General Investment Consultant

- Verus: Founded in 1986; 95 employees; 35 shareholders; 153 clients with \$742 billion in assets under advisement; offices in Seattle, San Francisco, Los Angeles and Pittsburgh.
- The University's consulting team continues under the leadership of Verus Chief Executive Officer Jeffrey MacLean.

# Investment Office

The Investment Office of the University of Missouri System is responsible for the management and oversight of the University's Retirement Plan, Endowment Pool and General Pool investment portfolios, in accordance with the University's Collected Rules and Regulations.



# Summary of FY23 Activity

(As of June 30, 2023)

	Beginning Balance	Contributions or Gifts	Benefits or Distributions	Investment Income	Ending Balance
Retirement Plan	\$4,285,000,000	\$146,000,000	(\$312,000,000)	\$152,000,000	\$4,271,000,000
Endowment Pool	\$2,144,000,000	\$96,000,000	(\$87,000,000)	\$81,000,000	\$2,234,000,000

The spending policy for the Endowment Pool is based on a 28-quarter market value average, which provides stability in distributions even in times of market volatility.

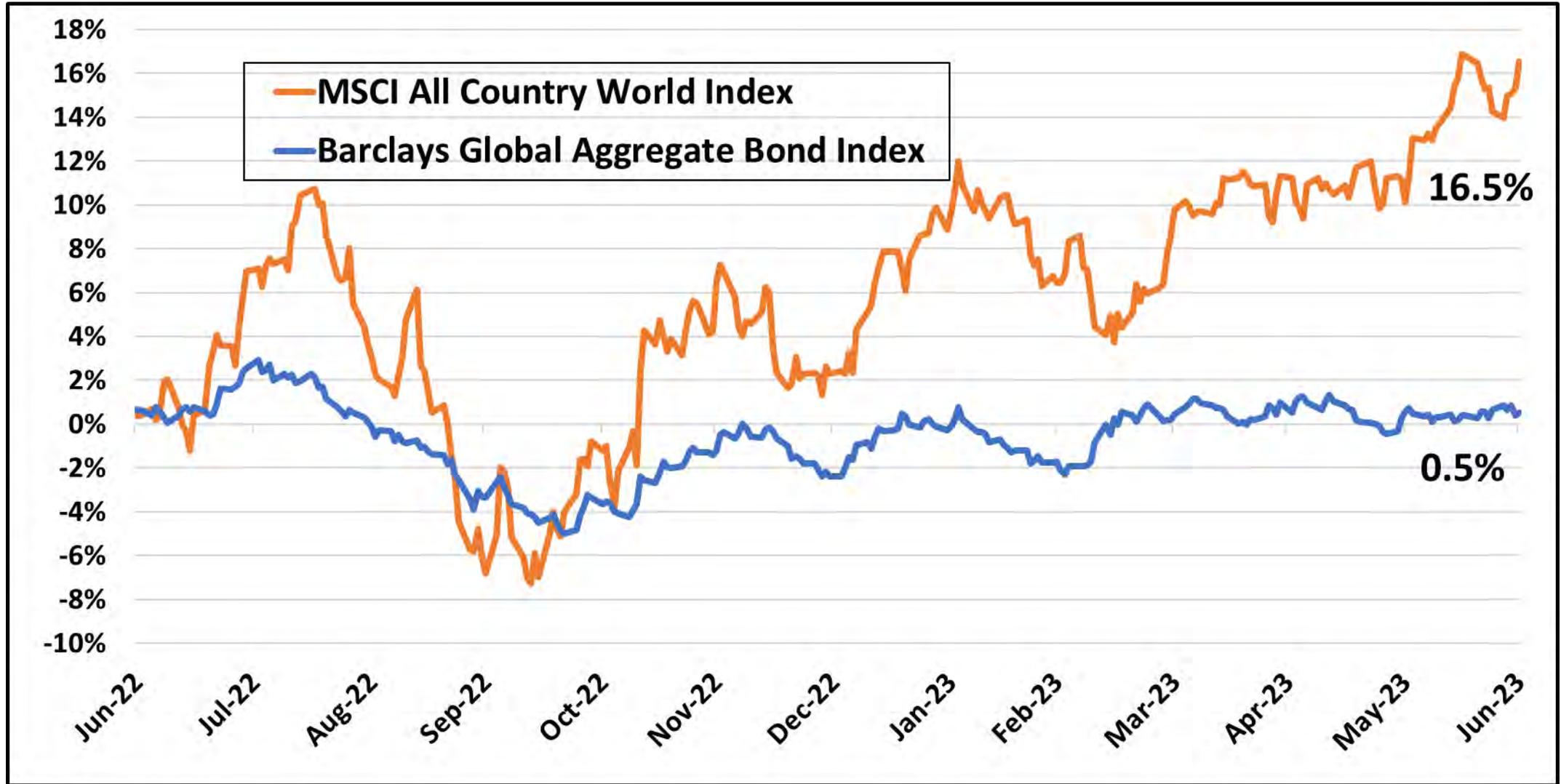
# Investing for the Long Term

(as of June 30, 2023)

	Retirement Plan		Endowment Pool	
	Actual	Benchmark	Actual	Benchmark
3 Year	9.7%	7.8%	10.1%	8.5%
5 Year	7.0%	6.5%	7.4%	7.0%
7 Year	8.4%	7.2%	8.5%	7.8%
10 Year	7.5%	6.8%	7.7%	7.4%

Longer-term returns are all comfortably above policy benchmarks.

# FY23 Market Returns



# FY22 vs FY23 Performance - Retirement

Retirement Plan	FY22	FY23
<b>Actual Return</b>	<b>(1.1%)</b>	<b>3.8%</b>
<b>Policy Benchmark</b>	<b>(3.2%)</b>	<b>4.2%</b>
% Excess Return	2.1%	(0.4%)
\$ Excess Return	\$93 million	(\$20 million)
<b>Global Passive Portfolio*</b>	<b>(13.5%)</b>	<b>9.9%</b>
% Excess Return	12.4%	(6.1%)
\$ Excess Return	\$593 million	(\$261 million)
<b>Peer Universe Median**</b>	<b>(11.0%)</b>	<b>9.1%</b>
% Excess Return	9.9%	(5.3%)
\$ Excess Return	\$449 million	(\$233 million)

\* 60% MSCI ACWI / 40% Barclays Global Aggregate

\*\* Investment Metrics Peer Data

- Performance is driven by asset allocation strategy. Our objective is to “lose less” when markets are down.
- FY22 demonstrated the power of protecting the downside, with significant outperformance by all measures.
- FY23 saw a strong stock market rally, while our portfolios were positioned conservatively relative to peers.
- Markets have yet to reconcile current valuations with economic reality; when that happens, our portfolios should do well on a relative basis.

# Three Year Performance

	Retirement	Endowment
<b>Actual Return</b>	<b>9.7%</b>	<b>10.1%</b>
<b>Policy Benchmark</b>	<b>7.7%</b>	<b>8.5%</b>
% Excess Return	2.0%	1.6%
\$ Excess Return	\$223 million	\$85 million
<b>Global Passive Portfolio*</b>	<b>5.5%</b>	<b>5.5%</b>
% Excess Return	4.2%	4.6%
\$ Excess Return	\$516 million	\$280 million
<b>Peer Universe Median**</b>	<b>7.3%</b>	<b>7.0%</b>
% Excess Return	2.4%	3.1%
\$ Excess Return	\$332 million	\$234 million

\* 60% MSCI ACWI / 40% Barclays Global Aggregate

\*\* Investment Metrics Peer Data

# One Year Returns by Asset Sector

(as of June 30, 2023)

	Retirement Plan			Endowment Pool		
Asset Sector	Actual	Benchmark	Variance	Actual	Benchmark	Variance
Public Equity	12.9%	16.5%	-3.6%	13.0%	16.5%	-3.5%
US Treasuries	2.0%	-1.0%	3.0%	2.0%	-1.0%	3.0%
Inflation-Linked Bonds	4.1%	-0.9%	5.0%	4.0%	-0.9%	4.9%
Commodities	-8.0%	-8.3%	0.3%	-7.9%	-9.6%	1.7%
Risk Balanced	-0.4%	-0.4%	0.0%	-0.4%	-0.4%	0.0%
Private Equity	-1.1%	-5.2%	4.1%	-4.7%	-6.9%	2.2%
Real Estate	0.5%	-3.9%	4.4%	-0.8%	-3.9%	3.1%
Private Debt	6.2%	3.5%	2.7%	7.6%	2.5%	5.1%
<b>Total Beta Portfolio</b>	<b>4.1%</b>	<b>4.2%</b>	<b>-0.2%</b>	<b>4.1%</b>	<b>4.4%</b>	<b>-0.3%</b>
Alpha Portfolio	-1.3%	-	-1.3%	-1.2%	-	-1.2%
<b>Total Portfolio</b>	<b>3.8%</b>	<b>4.2%</b>	<b>-0.4%</b>	<b>3.8%</b>	<b>4.4%</b>	<b>-0.6%</b>

# General Pool - Portfolio Returns

(Year Ended June 30, 2023)

	Mix 6/30/23	FY23	Benchmark	Excess
Liquidity Portfolio	47%	4.2%	3.7%	0.5%
Core Portfolio	27%	1.9%	-0.6%	2.5%
Strategic Portfolio	26%	4.5%	1.6%	2.9%
<b>Total General Pool</b>	<b>100%</b>	<b>3.7%</b>	<b>1.4%</b>	<b>2.3%</b>

FY23 was a strong year for the General Pool, as it was well positioned to benefit from the rise in short term rates following the Federal Reserve Rate hikes over the past year. During FY22, amidst the largest global bond market drawdown in 30 years, the investment team began a fairly aggressive repositioning of the portfolio, dramatically reducing credit risk and interest rate risk. Nearly one-half of the entire portfolio now is deployed in primarily risk-free U.S. Treasury Bills. Overall, the General Pool returned 3.7% in FY23, outperforming its benchmark by 2.3%, which equates to approximately \$66 million in value creation .

# Retirement Plan Guidance – Plan Year End

Actuarial calculations utilize an investment return assumption of 7.0%, measured each year at September 30th

Quarterly Performance for the Year Ended June 30, 2023		Estimated Performance for the 10 Months Ended July 31, 2023	
September 30, 2022	-2.2%		
December 31, 2022	2.7%	December 31, 2022	2.7%
March 31, 2023	2.1%	March 31, 2023	2.1%
June 30, 2023	1.1%	June 30, 2023	1.1%
Annualized Return	3.8%	July 31, 2023	1.6%
		10 Months through July 31, 2023	7.8%

# Questions?

Fiscal Year 2024 Strategic Dividend Distribution  
UM

Each University requests Board approval of the plans that follow for use of the dividend generated from investment earnings on the University’s General Pool. As outlined in the resource allocation principles established with the creation of the Council of Chancellors in November 2020, investment earnings are allocated based upon each University’s relative share of general pool assets that generated the income. Universities need to meet financial performance targets to utilize the dividend funds.

At the time of this mailing, the University’s close process is not yet complete. Each University is expected to meet financial performance targets for FY 2023 and will be able to utilize the dividend for FY 2024. The Board will receive an update on FY 2023 financial performance at the November 16 Board of Curators meeting.

The general pool returned 3.7% in FY 2023 and the dividend distribution is \$15,000,000; the distribution is as follows:

	<b>S&amp;T</b>	<b>UMKC</b>	<b>UMSL</b>	<b>MU</b>
Dividend	\$1,650,000	\$2,100,000	\$1,350,000	\$9,900,000
% of General Pool	11%	14%	9%	66%

The investment performance review is included as a separate information item for the Finance Committee. Dividend amounts are distributed to each University based upon their proportional share of the University’s General Pool. The accompanying proposals outline plans for each University’s dividend amount listed above. Each University’s plans for use address a strategic priority or capital need for the campus:

- MU Research Investments: investment in startup costs and capital investments to support research growth
- S&T Schrenk Hall East Renovation: pairs dividend with giving and state funding to remodel laboratory space for students and research.
- UMKC Renovations: investment in campus infrastructure to address critical maintenance and repair issues
- UMSL Space Consolidation & Soccer Sponsorship: funds support space consolidation to reduce deferred maintenance and the sponsorship of the MLS soccer team to improve brand awareness.

**Background on Strategic Dividend**

The strategic dividend is generated on the excess return from the investment of the University’s liquidity, otherwise referred to as the general pool. The strategic dividend was created with the formation of the Council of Chancellors in November 2020. The dividend is allocated based upon each university’s relative share of the assets that generated the income. This is how the University’s endowment pool works as well, with the relative asset value receiving the allocation of the income.

The dividend is meant to be a source of funding to drive investment in new one-time initiatives

at each University. These should be some of each University's highest priority and each university can only commit dividend funds in any one given year. Each University proposes a project with the Board retaining the approval rights for the use of the funds. To propose a project, each University must meet minimum financial performance thresholds, otherwise the dividend will be used to recapitalize the underperforming university.

No. 1

Recommended Action - Fiscal Year 2024 Strategic Dividend Distribution, UM

It was recommended by President Choi, Chancellor Agrawal, Chancellor Dehghani, and Chancellor Sobolik, recommended by the Finance Committee, moved by Curator \_\_\_\_\_ and seconded by Curator \_\_\_\_\_, that the following recommendations be approved:

- The strategic use of investment earnings from UM System as presented on the accompanying schedules.

Roll call vote of the Committee: YES NO

Curator Fry  
Curator Graves  
Curator Layman  
Curator Wenneker

The motion \_\_\_\_\_.

Roll call vote of The Board of Curators: YES NO

Curator Blitz  
Curator Brncic  
Curator Fry  
Curator Graves  
Curator Holloway  
Curator Layman  
Curator Sinquefield  
Curator Wenneker  
Curator Williams

The motion \_\_\_\_\_.

University of Missouri - Columbia  
Research Investments  
Dividend Use Summary

**Timeframe**

**Dividend Request Amount**

\$9,900,000

**Operating Sources**

Tuition \$0

Research: \$0

Gifts \$0

Other Revenues \$0

**Operating Expenses**

Compensation \$0

Supplies, Services, Other \$0

**Capital Sources**

State \$0

Capital Gifts: \$0

**Capital Investment:**

\$9,900,000

**Measures of Success:**

- Research Awards
- Research Expenditures
- Faculty Citations

**Project Description**

The dividend funding will be invested in the Mizzou Forward. One of the key goals of the initiative is to become a stronger research university with research performance that is nationally competitive amongst flagship institutions. Investments seek to impact research rankings through higher citations, national recognition of our faculty and improve MU's economic impact on the state through licensing and industry partnerships.

As we recruit new faculty and assist current faculty to support research growth, it will be essential that we are able to provide the caliber of space and equipment necessary to conduct their research.

MU seeks to invest the dividend as follows:

- \$9.9M as a portion of the internal funding required to carry out the research focused items on our capital plan.

**Project Justification**

The investment in our research focused capital plan will ensure that we equip our current and future faculty with the infrastructure it takes to successfully grow our research portfolio.

**Funding Strategy**

The dividend will support investments already made, including the \$221M NextGen Precision Health Center Building. The FY24 dividend will be stacked with future dividends and other sources of investment to continue making progress towards improving MU's research rankings over the coming years.

**Missouri University of Science and Technology**  
**Schrenk Hall East Renovation**  
**Dividend Use Summary**

**Timeframe**

Sept 2023 – Dec 2026

**Dividend Request Amount**

1,650,000

**Operating Sources**

Tuition \$0

Research: \$0

Gifts \$0

Other Revenues \$0

**Operating Expenses**

Compensation \$0

Supplies, Services, Other \$0

**Capital Sources**

State \$16,000,000

Gifts: \$14,350,000

Internal: \$1,650,000

**Capital Investment:**

\$32,000,000

**Measures of Success:**

- Improvement in FCNI
- Increase in Enrollment

**Project Description**

The Schrenk Hall East Renovation project was created to provide a newly renovated lab, office, and classroom space in the existing 55,000 square feet (SF) building on the Missouri S&T campus in Rolla, Missouri. The existing building will be renovated due to its poor condition, and the facilities condition needs index (FCNI) is 0.62 with approximately \$23.9 million in facility needs. Schrenk East was originally constructed in 1940 and is a 4-story structure built of cast-in-place concrete. The facility has not seen a major renovation since its original construction.

The Schrenk Hall East Renovation is a major step in the renewal Master Plan for the Schrenk complex. The primary project driver is to improve and increase research laboratory space to support the growth of both the Biological Sciences and Chemistry Departments at Missouri S&T while improving teaching labs, office space, and the overall facility condition of an aging facility on campus. The aging building is proposed to receive significant infrastructure replacements. Each floor receives newly renovated corridors and ADA upgrades throughout the building, and new mechanical, fire protection, electrical, and plumbing systems throughout. Site and exterior renovations include ADA compliant entries, brick tuckpointing, window and roof replacement, and sidewalk replacements.

**Project Justification**

The program and concept plan works within the capacity of the existing Schrenk Hall East with a phased approach to accommodate partial occupancy during construction as well as cost control. Research lab growth is the highest priority while maintaining the number of teaching labs and classrooms. The program represents growth in total from (8) Research Teams to (10) Research Teams in appropriately sized labs for anticipated team size. Measures of success include increasing recruitment yield from 11% to 22% in biological sciences, resulting in a doubling of the size of the undergraduate major from approximately 200 to 400 students; providing required office and research lab space to support a proposed new Ph.D. program, which will double research productivity, both in expenditures and publications; and address serious facilities deficiencies for a modern science building. This project has been listed on the Missouri S&T's capital plan for many years. The renovation and reinvestment into existing research laboratories support S&T's North Star Goal of achieving a Carnegie R1 classification. Because this is a renovation of existing space, no net new operating costs are anticipated.

September 7, 2023

**University of Missouri - Kansas City  
Critical Renovations  
Dividend Use Summary**

**Timeframe:** FY 24 - 25

**Dividend Request Amount**  
\$2,100,000

**Operating Sources**  
Tuition \$0  
Research: \$0  
Gifts \$0  
Other Revenues \$0

**Operating Expenses**  
Compensation \$0  
Supplies, Services, Other \$0

**Capital Sources**  
State \$0  
Capital Gifts: \$0

**Capital Investment:**  
\$2,100,000

**Measures of Success:**  
Improvement in FCNI

**Project Description**

The proposed use of strategic dividends will address critical maintenance and repair including code compliance and life safety needs on the campus across academic, student support, campus infrastructure, and administrative buildings. Maintenance of these facilities is in keeping with the Master Plan and long term plans for the buildings on the campus.

**Project 1: School of Education Classroom Renovations**

*Estimated project cost is \$300,000*

Rooms 118 and 119 are centrally scheduled classrooms located in the School of Education building and the goal is to update these two classrooms due to the age of the seating, flooring, and lighting, that appear to be original to the building and are in dire need of a refresh. The plan for these two rooms involves removing all the asbestos containing tile and glue, installing new epoxy flooring, replacing the seating, installing new LED light fixtures, removing carpet lined peg boards, and a new coat of paint.

**Project 2: Culture House Student Center Renovations**

*Estimated project is the \$700,000*

The renovation will make the first-floor code compliant and ADA compliant and habitable allowing the re-opening of an important student resource that has been closed due to code issues since 2020. Programming will resume that has not had a home since 2020. The project will eliminate existing Health and Life Safety issues. Construction is anticipated to take five months once the design is complete.

**Project 3: Administrative Center Wood Retaining Wall Replacement**

*Estimated project cost is \$650,000.*

Replacement of an existing failed wood retaining wall with a new modular block retaining wall. It also will eliminate some of the Evergy overhead power lines feeding Bloch Heritage and Bloch Executive. The project will eliminate existing Health and Life Safety issues. The project will be bid by our Master Contractor with construction beginning in spring 2024.

**Project 4: Administrative Center Asbestos Removal and Renovations**

*Estimated project cost is \$450,000.*

Project will remove and replace the asbestos flooring on the third floor of the Administration Center. Workstation upgrades will be designed allowing for a more efficient use of the existing space. The project will eliminate existing Health and Life Safety issues. Construction will occur over the summer of 2024.

September 7, 2023

**University of Missouri – St. Louis  
Facility Consolidation and Sponsorship  
Dividend Use Summary**

**Timeframe**

Fiscal Year 2024

**Dividend Request Amount**

\$1,350,000 total

**Operating Sources**

Tuition \$0

Research: \$0

Gifts \$0

Other Revenues \$0

**Operating Expenses**

Compensation \$135,000

Supplies, Services, Other  
\$515,000

**Capital Sources**

State \$0

Capital Gifts: \$0

**Capital Investment:**

\$700,000

**Measures of Success:**

- Improvement of FCNI
- Improvement in enrollment

**Project 1: Facilities Consolidation Efforts related to American Rescue Plan (ARPA) - \$835,000**

The University of Missouri – St. Louis (UMSL) campus has a footprint that encompasses 93 buildings and over 3.8 million square feet. Forty-eight percent of the buildings are over 50 years old with unfunded deferred maintenance estimated at \$390 million. Campus facilities consolidation is a multi-year project incorporated into the UMSL campus master facilities plan.

Timing and prioritization of projects is being made to leverage \$80 million of ARPA funding from both federal and state sources over five years. These are restricted funds dedicated to construction and renovation. The APRA funds specifically exclude several necessary costs required for successful project completion. Unallowable costs include UMSL staff time, general use furnishings and equipment including computer labs, and moving expenses.

UMSL proposes use of \$835,000 of the FY24 dividend to assist in funding necessary costs to support the capital funding provided by the State. Anticipated costs are compensation for a project manager, classroom and common space furniture, computer lab equipment and moving costs.

Specific projects scheduled for FY24 include renovations and relocation related to Colleges of Optometry and Education, Library and Honors College.

*Project Justification*

Consolidation has three primary objectives.

- Reduction in annual utilities/maintenance
- Reduction in unfunded deferred maintenance
- Consolidation of academic and student service units to north campus central “quad” increasing vibrancy of daily campus life.

## **Project 2: St. Louis Major League Soccer Team Sponsorship - \$515,000**

UMSL proposes use of \$515,000 FY24 dividend to enter a corporate sponsorship of the MLS St. Louis City soccer club professional team.

### *Project Justification*

Benefits of sponsorship include:

- Exclusive partner in the higher education category
- Physical and digital marketing in the newly constructed 22,500 capacity Centene Stadium located in downtown St. Louis.
- Premiere partner for our Sports Management program
- Building of our eSports teams together with collective UMSL branding
- UMSL content integration as Official Higher Education Partner of St. Louis CITY SC into social media platforms.
- UMSL branding and brand placement opportunities
- Outreach to potential students, parents and adult learners

# University of Missouri System Board of Curators September 7, 2023 Finance Committee

Fiscal Year 2024 Strategic Dividend Use



# Strategic Dividend - Background

- Created with the restructuring of the System to the Council of Chancellors in November 2020
  - Previous System funding reallocated to the Universities
  - System Administration is only a cost center as a result of this change
  - Universities retain all generated revenues (tuition, auxiliaries, grants, etc.)
- The dividend represents is derived from additional earnings of the general pool, which is the University's working capital
- The dividend is a source of strategic funding for the Universities to drive new initiatives

# FY 2022 Strategic Dividend - \$15 M

- Dividend results from returns on the General Pool of 3.7% in FY2023. Dividend distribution is at the floor amount of \$15M.
- Split based upon each university's general pool share
- Each University submitted a strategic priority for use:
  - MU: Mizzou Forward
  - S&T: Schrenk Hall East
  - UMKC: Infrastructure Renovations for critical M&R
  - UMSL: Space Consolidation and Sponsorship

Fiscal Year 2024 Mid-Year Modifications to Five-year Capital Plans for MU, MU Health Care, Missouri S&T, UMKC, and UMSL

The capital planning process approved at the September 2017 Board of Curators meeting includes development of a five-year capital plan that will be reviewed and approved annually by the Board of Curators. The process approved also provides for a mid-year modification process for any changes to the capital plan. The capital plan contains two sections, the five-year capital plan included in the five-year finance plan and aspirational strategic projects not currently included in the finance plan. This process allows for execution of the current year plans and will provide additional time for fundraising, working with legislature, and additional due diligence during years two through five. The capital plans will assist in driving any official fundraising campaigns for capital projects. Major capital projects will be approved by the Board of Curators before being incorporated into any approved capital plans, budget plans, or long-range business plans. Major capital projects include any new construction over \$5 million in project cost or any renovation/infrastructure improvements over \$8 million in project cost.

The capital planning process and investment in existing facilities are two key components of Facilities Stewardship. Facilities Stewardship is about taking a long and broad view of an institution's past and future. The University of Missouri System is comprised of over 1,500 buildings, four primary campuses and a health care system. Total valuation is over \$11 billion. Due to continued limited funding, we must be deliberate in setting capital priorities to uphold our stewardship responsibility. The capital planning process is critical in ensuring we uphold that responsibility.

Included herein is the FY 2024 Mid-Year Capital Project Plan Modification for review and approval. The projects impacted are highlighted in red in the following tables with a description of the modification below the table. Also included is the annual status report for projects approved by the Board of Curators.

No. 2

Recommended Action - Approval, Fiscal Year 2024 Mid-Year Modifications to Capital Plans for MU, MU Health Care, Missouri S&T, UMKC and UMSL

It was recommended by President Choi, Chancellor Agrawal, Chancellor Dehghani, and Chancellor Sobolik, recommended by the Finance Committee, moved by Curator \_\_\_\_\_ and seconded by Curator \_\_\_\_\_, that the:

- MU: Capital Plan included in Finance Plan:
- Modified Center for Energy Science, Engineering and Policy
  - Modified NextGen MURR Phase One
  - Modified Electrical Interconnection and Substation
  - Modified Ellis Library – MU Student Experience Center
  - Added Veterinary Medical Expansion
  - Added Meat Processing Facility
  - Added Research Commons Thermal Plant – Chilled Water Production Addition
- Strategic Projects Development Plan:
- Added NextGen 4<sup>th</sup> Floor Innovation Tower Fit-Out
  - Added MURR Production Facility
  - Added Memorial Union – Masonry and Exterior Envelope Repairs Phase II
- MUHC: Capital Plan included in Finance Plan:
- No Changes
- Strategic Projects Development Plan:
- No Changes
- UMKC: Capital Plan included in Finance Plan:
- Modified Steam Heating Plant Renewal
- Strategic Projects Development Plan:
- No Changes

- S&T: Capital Plan included in Finance Plan:
- Modified Engineering Research Lab Addition and Renovation
  - Modified Schrenk Hall East Renovation
  - Modified • Norwood, Parker, and Harris HVAC Systems Replacement

- Strategic Projects Development Plan:
- Added Partnership Research Facility

- UMSL: Capital Plan included in Finance Plan:
- No Changes

- Strategic Projects Development Plan:
- No Changes

be approved for further planning and development as described in the following materials.

Roll call vote of the Committee: YES NO

Curator Fry  
Curator Graves  
Curator Layman  
Curator Wenneker

The motion \_\_\_\_\_.

Roll call vote: YES NO

Curator Blitz  
Curator Brncic  
Curator Fry  
Curator Graves  
Curator Holloway  
Curator Layman  
Curator Sinquefield  
Curator Wenneker  
Curator Williams

The motion \_\_\_\_\_.

University of Missouri – Columbia  
Fiscal Year 2024 Mid-Year Capital Plan Modifications

University of Missouri - Columbia: Fiscal Years 2024 - 2028 Capital Plan included in Finance Plan

MU	2024	2025	2026	2027	2028
	Year 1	Year 2	Year 3	Year 4	Year 5
<b>New Construction</b>	<b>\$346,000,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
Center for Energy Science, Engineering and Policy	\$160,000,000				
NextGen MURR Phase One	\$36,000,000				
Electrical Interconnection & Substation	\$42,000,000				
Veterinary Medical Expansion	\$43,000,000				
Meat Processing Facility	\$25,000,000				
Research Common Thermal Plant -Chilled Water Addition	\$5,000,000				
Radioisotope Facility at Discovery Ridge	\$35,000,000				
<b>Renovation/Infrastructure</b>	<b>\$25,000,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
Ellis Library – MU Student Experience Center	\$15,000,000				
Pickard Hall – Decommissioning and Mitigation	\$10,000,000				
<b>Total Project Cost</b>	<b>\$371,000,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>

University of Missouri – Columbia: Fiscal Years 2024 – 2028 Capital Plan included in Finance Plan Funding

Project					Funding Strategy					
#	Title	Type	Facility Needs	FCNI	Total Cost	Debt	Gifts	Internal	Federal	State
1	Engineering Science, Engineering & Policy Building	NC	NA	NA	\$160,000,000	\$0	\$60,000,000	\$0	\$0	\$100,000,000
2	NextGen MURR Phase One	NC	NA	NA	\$36,000,000	\$0	\$0	\$0	\$20,000,000	\$16,000,000
3	Electrical Interconnection & Substation	NC	NA	NA	\$42,000,000	\$0	\$0	\$22,000,000	\$0	\$20,000,000
4	Veterinary Medical Expansion	NC	\$6.0M	0.50	\$43,000,000	\$0	\$0	\$0	\$0	\$43,000,000
5	Meat Processing Facility	NC	NA	NA	\$25,000,000	\$0	\$0	\$0	\$0	\$25,000,000
6	Ellis Library – MU Student Experience Center	RE	\$34.0M	0.39	\$15,000,000	\$0	\$0	\$15,000,000	\$0	\$0
7	Research Commons Thermal Plant -Chilled Water Addition				\$5,000,000	\$0	\$0	\$5,000,000	\$0	\$0
8	Radioisotope Facility at Discovery Ridge	NC	NA	NA	\$35,000,000	\$0	\$0	\$0	\$35,000,000	\$0
9	Pickard Hall – Decommissioning and Mitigation	Dem	\$6.5M	0.47	\$10,000,000	\$0	\$0	\$10,000,000	\$0	\$0
	<b>Total</b>				<b>\$371,000,000</b>	<b>\$0</b>	<b>\$60,000,000</b>	<b>\$52,000,000</b>	<b>\$55,000,000</b>	<b>\$204,000,000</b>

September 7, 2023

## FY24 MU Capital Plan Modifications

The following projects have been modified:

- Center for Energy Science, Engineering and Policy
  - Changed project name from Engineering & Applied Sciences to Engineering Science, Engineering & Policy Building
  - Project moved to FY2024 for project approval in lieu of FY2023. AE Hire approval occurred in FY2023
  - Total Project Cost has increased from \$150,000,000 to \$160,000,000 to maximize building footprint and shell space to accommodate future growth.
  - Funding from Gifts has increased from \$50,000,000 to \$60,000,000.
  
- NextGen MURR Phase One
  - Project moved to FY2024 for project A/E Hire in lieu of FY2023.
  
- Electrical Interconnection & Substation
  - Project moved to FY2024 for project approval in lieu of FY2023.
  
- Ellis Library – MU Student Experience Center
  - Project moved to FY2024 for project approval in lieu of FY2023

The following projects have been added:

- Veterinary Medical Expansion

The project envisions replacing the existing VMDL facility to construct facilities to include the Veterinary Medical Diagnostic Laboratory's Histopathology Core, Clinical Pathology Core, and supporting spaces as well as renovations to portions of the Clydesdale Hall Veterinary Health Center, including evaluating a connection between the Clydesdale and VMDL facilities.

  - Project Budget is \$43,000,000
  - Funding will be from a State Appropriations
  - Design and construction schedule development is in process.
  
- Meat Processing Facility

This project will construct a meat processing facility on university property in the Columbia area. This facility will entail all aspects of slaughter, fabrication, processing, and retail sales of meat animal species. Missouri is home to over 200 small and very small meat processors and MU provides technical advising to the businesses as well as training for those directly and indirectly involved in this important part of the Missouri economy.

  - Project Budget is \$25,000,000
  - Funding will be from State Appropriations
  - Study is underway to develop site options.
  - Design and construction schedule development is in process.

September 7, 2023

- Research Commons Thermal Plant – Chilled Water Production Addition

This project will construct a building addition to the new Research Commons Thermal Plant and install approximately 1,000-tons of chilled water capacity. This new investment provides added capacity and reliability to the buildings in the Research Commons area which includes the MU Research Reactor and the new USDA facility and facilitates retirement of the 500-ton chiller in Dalton Cardiovascular Center which has reach its end-of-life.

- Project Budget is \$5,000,000
- Funding will be from internal sources.
- Project completion target is Spring 2025

## University of Missouri – Columbia: FY 2024 Strategic Development Projects Plan

<b>Project</b>					
<b>#</b>	<b>Title</b>	<b>Type</b>	<b>Facility Needs</b>	<b>FCNI</b>	<b>Total Cost</b>
1	Animal Resource Center - Vivarium Facility Expansion	NC	NA	NA	\$8,000,000
2	Bond Life Sciences Center - Phase II	NC	NA	NA	\$80,000,000
3	Medical Science Building - Renovation Phase III	RE	\$42.0M	0.37	\$20,000,000
4	Jesse Hall Exterior Masonry/Metal Repairs & Window Replacement	RE	\$15.2M	0.27	\$15,000,000
5	Laboratory for Infectious Disease Research – Regional Biocontainment Lab Addition	NC	NA	NA	\$52,000,000
6	NextGen 4 <sup>th</sup> Floor Innovation Tower Fit-Out	RE	NA	NA	\$10,000,000
7	MURR Production Facility	NC	NA	NA	\$40,000,000
8	Memorial Union – Masonry and Exterior Envelope Repairs Phase II	NC	NA	NA	\$11,400,000
<b>Total</b>					<b>\$236,400,000</b>

### FY24 MU Strategic Projects Plan Modifications

The following projects have been added to the plan:

- NextGen 4<sup>th</sup> Floor Innovation Tower Fit-Out  
Approximately 10,000 gsf of shell space remains available on the 4<sup>th</sup> floor of NexGen. This project would finish this space to support MizzouForward.
- MURR Production Facility  
MURR’s success with medical radioisotopes has created a need for more production space. This project will construct a facility to support additional production lines.
- Memorial Union – Masonry and Exterior Envelope Repairs Phase II  
Continue restoration and repairs on the iconic Memorial Union building to address water penetration into the building via window lintels and masonry pointing to replace past patchwork of repairs over the decades.

September 7, 2023

MU Health Care  
Fiscal Year 2024 Mid-Year Capital Plan Modifications

MU Health Care: Fiscal Years 2024 - 2028 Capital Plan included in Finance Plan

	2024	2025	2026	2027	2028
	Year 1	Year 2	Year 3	Year 4	Year 5
<b>New Construction</b>	\$0	\$0	\$0	\$66,000,000	\$0
MU Health Care Campus Consolidation & Inpatient Services Expansion	\$0	\$0	\$0	\$66,000,000	\$0
<b>Renovation/Infrastructure</b>	\$0	\$0	\$0	\$0	\$0
		\$0	\$0	\$0	\$0
<b>Total</b>	\$0	\$0	\$0	\$66,000,000	\$0

MU Health Care: Fiscal Years 2024 – 2028 Capital Plan included in Finance Plan Funding

MUHC						Funding		Strategy		
#	Title	Type	Facility Needs	FCNI	Total Cost	Debt	Gifts	Internal	Federal	State
1	MU Health Care Campus Consolidation & Inpatient Services Expansion	NC	NA	NA	\$66,000,000	\$66,000,000	\$0	\$0	\$0	\$0
<b>Total</b>					\$66,000,000	\$66,000,000	\$0	\$0	\$0	\$0

FY24 MU Health Care Capital Plan Modifications

The following project has been moved from the Strategic Project Plan: (no changes)

MU Health Care: FY 2024 Strategic Development Projects Plan

<b>Project</b>					
<b>#</b>	<b>Title</b>	<b>Type</b>	<b>Facility Needs</b>	<b>FCNI</b>	<b>Total Cost</b>
1	Children's Hospital Facility -Third Floor Surgery Fit-Out	RE	N/A	N/A	\$37,000,000
<b>Total</b>					<b>\$37,000,000</b>

FY24 MU Health Care Strategic Projects Plan Modifications (no changes)

University of Missouri – Kansas City  
Fiscal Year 2024 Mid-Year Capital Plan Modifications

University of Missouri - Kansas City: Fiscal Years 2024 - 2028 Capital Plan included in Finance Plan

Projects	2024	2025	2026	2027	2028
	Year 1	Year 2	Year 3	Year 4	Year 5
<b>New Construction</b>	<b>\$80,000,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
Athletics Performance Center Additions and Renovations	\$55,000,000				
KCUR Building	\$25,000,000				
<b>Renovation/Infrastructure</b>	<b>\$44,000,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
Student Success Atterbury & Miller Nichols Library Renovations	\$30,000,000				
Steam Heating Plant Renewal	\$14,000,000				
<b>Total Project Cost</b>	<b>\$124,000,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>

University of Missouri - Kansas City: Fiscal Years 2024 – 2028 Capital Plan included in Finance Plan Funding

Projects					Funding Strategy					
#	Title	Type	Facility Needs	FCNI	Total Cost	Debt	Gifts	Internal	Federal	State
1	Student Success Atterbury & Miller Nichols Library Renovations	RE	\$33.4M	0.19-	\$30,000,000	\$0	\$15,000,000	\$15,000,000	\$0	\$0
2	Athletics Performance Center Additions and Renovations	RE/NC	\$25.7M	0.31	\$55,000,000	\$0	\$55,000,000	\$0	\$0	\$0
3	Steam Heating Plant Renewal	INFR	\$28.1M	NA	\$14,000,000	\$14,000,000	\$0	\$0	\$0	\$0
4	KCUR Building	NC	NA	NA	\$25,000,000	\$0	\$25,000,000	\$0	\$0	\$0
<b>Total</b>					<b>\$124,000,000</b>	<b>\$14,000,000</b>	<b>\$95,000,000</b>	<b>\$15,000,000</b>	<b>\$0</b>	<b>\$0</b>

FY24 UMKC Capital Plan Modifications

The following project has been modified:

- Steam Heating Plant Renewal
  - Project was moved from FY2023 to FY2024.
  - Budget and debt funding was reduced from \$14,500,000 to \$14,000,000.

University of Missouri - Kansas City: FY 2024 Strategic Development Projects Plan

<b>Projects</b>					
<b>#</b>	<b>Title</b>	<b>Type</b>	<b>Facility Needs</b>	<b>FCNI</b>	<b>Total Cost</b>
1	Olson Performing Arts Center Renovations and Additions	RE/NC	\$32.3M	0.35	\$30,000,000
2	Spencer Chemistry & Biological Science Renovation Phase II	RE	\$39.2M	0.26-0.34	\$40,000,000
3	New Student Housing*	NC	NA	NA	\$45,000,000
4	4747 Troost Renovation	RE	\$12.5M	0.44	\$8,500,000
<b>Total</b>					<b>\$123,500,000</b>

\*New Student Housing Project to be funded through a Public Private Partnerships (P3's).

FY24 UMKC Strategic Projects Plan Modifications (no changes)

Missouri University of Science and Technology  
Fiscal Year 2024 Mid-Year Capital Plan Modifications

Missouri University of Science and Technology: Fiscal Years 2024 - 2028 Capital Plan included in Finance Plan

Missouri S&T	2024	2025	2026	2027	2028
	Year 2	Year 3	Year 4	Year 5	Year 5
<b>New Construction</b>	<b>\$49,000,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
Engineering Research Lab Addition and Renovation	\$49,000,000				
<b>Renovation/Infrastructure</b>	<b>\$50,935,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
Schrenk Hall East Renovation	\$32,000,000				
Norwood, Parker, and Harris HVAC Systems Replacement	\$18,935,000				
<b>Total Project Cost</b>	<b>\$99,935,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>

Missouri University of Science and Technology: Fiscal Years 2024 – 2028 Capital Plan included in Finance Plan Funding

Projects										
#	Title	Type	Facility Needs	FCNI	Total Cost	Debt	Gifts	Internal	Federal	State
1	Engineering Research Lab Addition and Renovation	NC/RE	\$17.8 M	0.56	\$49,000,000	\$0	\$11,182,500	\$14,785,000	\$0	\$23,032,500
2	Schrenk Hall East Renovation	RE	\$23.9 M	0.62	\$32,000,000	\$0	\$14,350,000	\$1,650,000	\$0	\$16,000,000
3	Norwood, Parker, and Harris HVAC Systems Replacement	RE	\$19.3 M	0.34	\$18,935,000	\$0	\$9,467,500	\$0	\$0	\$9,467,500
<b>Total</b>					<b>\$99,935,000</b>	<b>\$0</b>	<b>\$35,000,000</b>	<b>\$16,435,000</b>	<b>\$0</b>	<b>\$48,500,000</b>

FY24 Missouri S&T Capital Plan Modifications

The following project has been modified:

- Engineering Research Lab Addition and Renovation
  - Project moved to FY2024 in lieu of FY2023.
  - Total Project Cost has been reduced from \$55,502,853 to \$49,000,000.
  - Funding from Gifts has been reduced from \$19,151,179 to \$11,182,500, Internal funding increased from 4,889,022 to \$14,785,000, Federal Funding has been reduced from \$4,103,824 to \$0, and funding from the State has been reduced from \$27,358,828 to \$23,032,500.
  - The building addition square footage has been reduced from 41,850 gross square feet (gsf) to 33,000 gross square feet (gsf).

- Schrenk Hall East Renovation
  - Project moved to FY2024 in lieu of FY2023.
  - Total Project Cost has increased from \$27,678,110 to \$32,000,000.
  - Funding from Gifts has been increased from \$9,550,292 to \$14,350,000, Internal funding decreased from 2,438,053 to \$1,650,000, Federal funding has been reduced from \$2,046,491 to \$0, and funding from the State has been increased from \$13,643,274 to \$16,000,000.
  
- Norwood, Parker, and Harris HVAC Systems Replacement
  - Project moved to FY2024 in lieu of FY2023.
  - Total Project Cost has increased from \$18,254,036 to \$18,935,000.
  - Funding from Gifts has increased from \$6,298,529 to \$9,467,500, Internal funding decreased from 1,607,924 to \$0, Federal funding has been reduced from \$1,349,685 to \$0, and funding from the State has been increased from \$8,997,898 to \$9,467,500.

## Missouri University of Science and Technology: FY 2024 Strategic Development Projects Plan

Project					
#	Title	Type	Facility Needs	FCNI	Total Cost
1	Innovation Campus Program Expansion	NC	NA	NA	\$95,000,000
2	Bioplex	NC	NA	NA	\$90,909,091
3	Partnership Research Facility	NC	NA	NA	\$21,581,857
4	University Center West	NC	NA	NA	\$11,191,515
5	Computer Science Building Renovation	RE	\$11.0M	0.52	\$17,175,990
6	Physics Building Renovation	RE	\$13.1M	0.37	\$23,307,375
<b>Total</b>					<b>\$259,165,828</b>

### FY24 Missouri S&T Strategic Projects Plan Modifications

The following projects have been added to the plan:

- Partnership Research Facility  
This project provides a new 40,070 gross square feet facility for leasable research space for strategic partnerships. The building provides space for research partnerships that would increase S&T's research volume and contribute to the north star goal.

University of Missouri – St. Louis  
Fiscal Year 2024 Mid-Year Capital Plan Modifications

University of Missouri – St. Louis: Fiscal Years 2024 - 2028 Capital Plan included in Finance Plan

<b>Projects</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>
	Year 1	Year 2	Year 3	Year 4	Year 5
<b>New Construction</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
N/A					
<b>Renovation/Infrastructure</b>	<b>\$15,000,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
Central Utility Plant – North Campus	\$15,000,000				
<b>Total Project Cost</b>	<b>\$15,000,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>

University of Missouri – St. Louis: Fiscal Years 2024 – 2028 Capital Plan included in Finance Plan Funding

<b>Project</b>					<b>Funding Strategy</b>					
<b>#</b>	<b>Title</b>	<b>Type</b>	<b>Facility Needs</b>	<b>FCNI</b>	<b>Total Cost</b>	<b>Debt</b>	<b>Gifts</b>	<b>Internal</b>	<b>Federal</b>	<b>State</b>
1	Central Utility Plant – North Campus	INFR	NA	NA	\$15,000,000	\$0	\$0	\$8,771,630	\$0	\$6,228,370
<b>Total</b>					<b>\$15,000,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$8,771,630</b>	<b>\$0</b>	<b>\$6,228,360</b>

FY24 UMSL Capital Plan Modifications (no changes)

University of Missouri –St. Louis: FY 2024 Strategic Development Projects Plan

<b>Projects</b>					<b>Funding Strategy</b>					
<b>#</b>	<b>Title</b>	<b>Type</b>	<b>Facility Needs</b>	<b>FCNI</b>	<b>Total Cost</b>	<b>Debt</b>	<b>Gifts</b>	<b>Internal</b>	<b>Federal</b>	<b>State</b>
1	Stadler Hall Renovation	RE	\$30.0M	0.57	\$38,500,000	\$0	\$0	\$0	\$0	\$38,500,000
<b>Total</b>					<b>\$38,500,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$38,500,000</b>

FY24 UMSL Strategic Projects Plan Modifications (no changes)

Board Approved Project Status Report for Fiscal Year 2023  
 Project Status as of June 30, 2023  
 (New Construction Project Cost > \$5,000,000, Renovation/Infrastructure Project Cost > \$8,000,000  
 or Debt Financed)

UNIVERSITY	PROJECT	LAST BOARD SUBMITTAL	PROJECT BUDGET	SCHEDULED PROJECT COMPLETION	STATUS
MU	Sinclair School of Nursing	Project Design	\$30,000,000	August 2022	Complete
MU	MUHC – Children’s Hospital Facility	Project Design	\$232,000,000	June 2024	Construction
MU	Indoor Practice Facility	Naming	\$33,140,000	June 2023	Complete
MU	Power Plant – Replace Turbine 6 with Turbine 10	Project Approval	\$8,000,000	February 2024	Construction
MU	Veterinary Medicine Diagnostic Laboratory	Project Design	\$30,000,000	Summer 2024	Construction
MU	Middlebush Farm – NextGen Center of Excellence for Influenza Research	Project Design	\$6,552,000	September 2022	Complete
MU	Lottes Health Sciences Library – Renovation for Consolidation	Project Approval	\$8,500,000	Spring 2024	Design
MU	NextGen Precision Health 4 <sup>th</sup> Floor Fit-Out	Project Approval	\$16,500,000	Fall 2024	Construction
MU	Pershing Commons – Renovation for Student Health Center and School of Medicine/MUHC Offices	Project Approval	\$10,860,000	April 2024	Construction
MU	MU Research Reactor – West Expansion	Project Design	\$20,000,000	Fall 2024	Construction
MU	Mizzou North Demolition	Project Approval	\$10,000,000	January 2024	Construction
MU	Electric Interconnection and Substation	A/E Hire	\$42,000,000	May 2025	Design
MU	Medical Science Building – Renovations	Project Approval	\$20,000,000	June 2025	Design
MU	Engineering Science, Engineering & Policy Building	A/E Hire	\$150,000,000	November 2026	Design
MU	Middlebush Farm – NextGen Center for Influenza Research – Phase II Addition	Project Approval	\$7,500,000	Spring 2025	Design

September 7, 2023

(New Construction Project Cost > \$5,000,000, Renovation/Infrastructure Project Cost > \$8,000,000  
or Debt Financed)

UNIVERSITY	PROJECT	LAST BOARD SUBMITTAL	PROJECT BUDGET	SCHEDULED PROJECT COMPLETION	STATUS
MU	Research Commons – Thermal Plant	Project Reapproval	\$13,000,000	January 2024	Construction
MU	Virginia Avenue Parking Structure Repairs	Project Approval	\$16,000,000	Fall 2023	Construction
MU	Missouri Psychiatric Center - Infrastructure Upgrades and Renovation for Emergency Department Expansion	Project Approval	\$12,500,000	September 2024	Design
MU	National Swine Resource and Research Center – Addition	Project Approval	\$8,000,000	Spring 2025	Design
MU	South Farm - Swine Research and Education Facility Addition	Project Approval	\$5,000,000	January 2025	Design
MU	Thompson Center	Project Approval	\$55,000,000	December 2025	Design
UMKC	Bloch Heritage Hall Renovation & Addition	Project Design	\$16,000,000	July 2022	Complete
UMKC	Healthcare Innovation and Delivery Building	Project Approval	\$120,000,000	May 2026	Design
UMKC	School of Medicine, St. Joseph’s Facility	Project Approval	\$14,500,000	January 2025	Design
S&T	Student Experience Center	Project Design	\$37,720,750	December 2023	Construction
S&T	Welcome Center	Project Approval	\$25,750,000	December 2024	Design
S&T	Arrival Court	Project Design	\$9,600,000	Fall 2023	Construction
S&T	Missouri Protoplex - Phase One	Project Reapproval	\$13,068,182	December 2023	Construction
S&T	Missouri Protoplex – Phase II	Project Reapproval	\$79,527,586	August 2025	Design
S&T	Substation Relocation	Project Approval	\$8,774,898	October 2023	Construction
S&T	Subsurface Parking Garage	Project Design	\$10,277,630	August 2023	Construction

September 7, 2023

(New Construction Project Cost > \$5,000,000, Renovation/Infrastructure Project Cost > \$8,000,000  
or Debt Financed)

<b>UNIVERSITY</b>	<b>PROJECT</b>	<b>LAST BOARD SUBMITTAL</b>	<b>PROJECT BUDGET</b>	<b>SCHEDULED PROJECT COMPLETION</b>	<b>STATUS</b>
UMSL	College of Education to Quad Area	Project Approval	\$21,780,000	Winter 2025	Design
UMSL	Music and Fine Arts Relocation to Arts and Administration Building, North Campus	Project Approval	\$12,100,000	Fall 2024	Design
UMSL	Optometry and Honors College Consolidation	Project Approval	\$15,950,000	September 2025	Design
UMSL	Thomas Jefferson Library Renovation	Project Approval	\$11,330,000	Winter 2024	Design
UMSL	Richter Family - Welcome and Alumni Center	Project Approval	\$14,200,000	Summer 2025	Construction

# University of Missouri System Board of Curators September 7, 2023

Fiscal Year 2024 Mid-Year Changes to Capital Plans  
for MU, MU Health Care, S&T, UMKC, and UMSL

UM



# Capital Planning

## Capital Plan includes:

- Rolling Five-year Capital Plan included in Five-year Finance Plan
  - All planned new construction projects greater than \$5.0 million & renovation and infrastructure projects greater than \$8.0 million
  - All planned debt funded projects regardless of size
- Strategic Project Plan
  - Strategic new construction projects greater than \$5.0 million & renovation and infrastructure projects greater than \$8.0 million not currently in the Five-year Finance Plan
  - All planned debt funded projects regardless of size for projects not currently in the Finance Plan

# MU CAPITAL PLAN MID-YEAR CHANGES

Modified the following projects in the Capital Plan included in Finance Plan:

- Center for Energy Science, Engineering and Policy
- NextGen MURR Phase One
- Electrical Interconnection and Substation
- Ellis Library – MU Student Experience Center

Added the following projects to the Capital Plan included in Finance Plan:

- Veterinary Medical Expansion
- Meat Processing Facility
- Research Commons Thermal Plant – Chilled Water Production Addition

# MU CAPITAL PLAN MID-YEAR CHANGES

Added the following projects to the Strategic Project Plan:

- NextGen 4<sup>th</sup> Floor Innovation Tower Fit-Out
- MURR Production Facility
- Memorial Union – Masonry and Exterior Envelope Repairs Phase II

# MUHC CAPITAL PLAN MID-YEAR CHANGES

No changes to the Capital Plan

# UMKC CAPITAL PLAN MID-YEAR CHANGES

Modified the following project in the Capital Plan included in Finance Plan:

- Steam Heating Plant Renewal

No changes to the Strategic Projects Plan

# S&T CAPITAL PLAN MID-YEAR CHANGES

Modified the following projects in the Capital Plan included in Finance Plan:

- Engineering Research Lab Addition and Renovation
- Schrenk Hall East Renovation
- Norwood, Parker, and Harris HVAC Systems Replacement

Added the following project to the Strategic Projects Plan:

- Partnership Research Facility

# UMSL CAPITAL PLAN MID-YEAR CHANGES

No changes to the Capital Plan



# University of Missouri System

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# AUDIT, COMPLIANCE AND ETHICS COMMITTEE

Michael A. Williams, Chair

Julia G. Brncic

Keith A. Holloway

Jeanne Carins Sinquefield

The Audit, Compliance and Ethics Committee (“Committee”) will review and recommend policies to enhance the quality and effectiveness of the University’s financial reporting, internal control structure and compliance and ethics programs.

## I. Scope

In carrying out its responsibilities, the Committee monitors and assesses the University’s financial reporting systems and controls, internal and external audit functions, and compliance and ethics programs.

## II. Executive Liaison

The Chief Audit and Compliance Officer of the University or some other person(s) designated by the President of the University, with the concurrence of the Board Chair and the Committee Chair, shall be the executive liaison to the committee and responsible for transmitting committee recommendations.

## III. Responsibilities

In addition to the overall responsibilities of the Committee described above and in carrying out its responsibilities, the charge of the Committee shall include:

- A. Reviewing and making recommendations to the Board in the following matters:
  1. the University risk assessment, audit plan and compliance plan;
  2. in conjunction with the Governance, Compensation and Human Resources Committee, the appointment, compensation, annual performance evaluation and termination of the University’s Chief Audit and Compliance Officer;
  3. the appointment, compensation, and termination of the university’s external auditors.
- B. Providing governance oversight regarding:
  1. development and monitoring a University code of conduct;
  2. effectiveness of the internal control framework;
  3. ensuring that the significant findings and recommendations are received, discussed and appropriately resolved;
  4. procedures for reporting misconduct without the fear of retaliation;
  5. university compliance with applicable laws, regulations, and policies that govern all aspects of University operations including but not limited to the following:
    1. Administrative compliance risks
    2. Healthcare compliance risks
    3. Research compliance risks
    4. Information security compliance risks
    5. Privacy compliance risks
  6. those additional matters customarily addressed by the audit, compliance and ethics committee of a governing board for an institution of higher education.
- C. Reviewing periodic reports regarding:

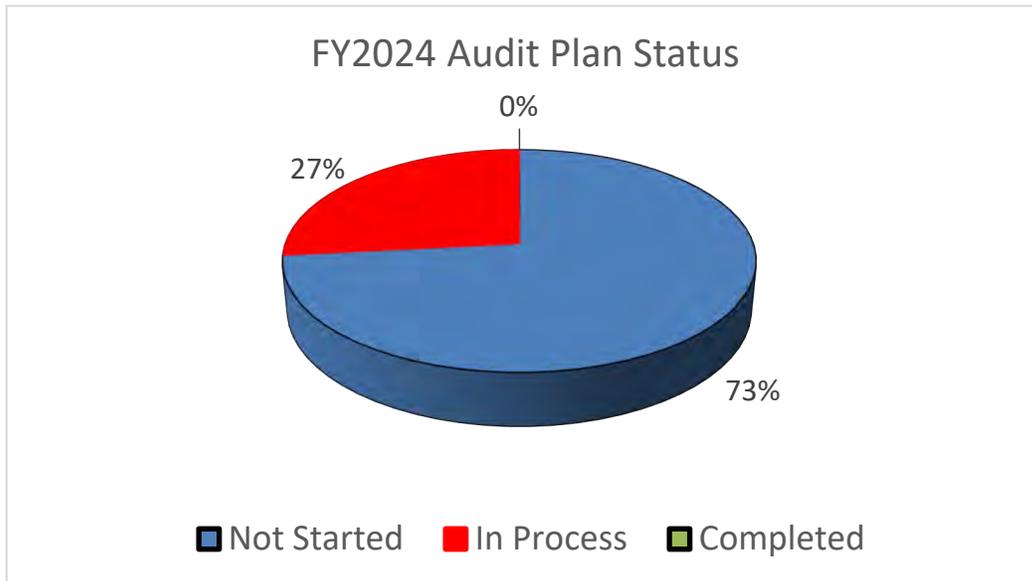
1. the independence, performance, resources and structure of the internal audit, compliance and ethics functions;
2. audit reports and open audit issue status updates;
3. management's written responses to significant findings and recommendations by the auditors;
4. the adequacy of the University's information technology methodology with regards to security, internal controls and data integrity assurance;
5. annual external audit reports, including audited financial statements, single audit and required procedures; and
6. the effectiveness of the compliance and ethics program ensuring it has appropriate standing and visibility across the system.

## Internal Audit, Compliance and Ethics Quarterly Report UM

### Status of the FY2024 Annual Audit Plan

- Eight audits/consulting projects in process
- Twenty-two audits/consulting projects not started

The following graph represents the status of the FY2024 Audit Plan.



### Audit Performance

Since the June 2023 meeting of the Audit, Compliance, and Ethics Committee, Internal Audit completed procedures to validate implementation of management action plans related to previously completed audits and completed six investigations.

### Audits and Consulting Engagements Currently in Process

Audit Area	Overall Objective	Status	Risk Area(s)
MU Athletics Standard Financial Audit	Focus on processes impacting financial performance.	Reporting	Operations
MUHC – Conflict of Interest/Commitment	Complete effectiveness assessments of the conflict of interest and commitment process against established criteria.	Reporting	Compliance
S&T – Export Controls	Assessment of export control processes.	Fieldwork	Compliance
MU/MUHC Network Segregation	Verify appropriateness of the MUHC border Adaptive Security Appliance (a firewall) rules request process and determine to what extent the campus network can access the hospital network.	Fieldwork	Information Technology
S&T - Construction	Co-sourced engagement to review performance and contract compliance.	Planning	Compliance Operations
MUHC Charge Capture Operating Room	Perform a charge capture audit to identify any missing revenue.	Planning	Operations
MU/Extension Grant Assessment	Evaluation of a grant to understand how spending is tracked through the systems.	Planning	Operations
MU Scholarship Awards	Assessment of scholarship awards to donor restrictions and/or established criteria.	Planning	Operations

In addition, we are actively working four investigations.

## **Management Action Plan Status as of June 30, 2023**

Follow-up procedures are performed twice a year to verify the status of management actions for previously issued audit reports. For this period, two action items were due for completion by June 30, 2023.

The table at the end of this report lists audits with open action items. At least one action plan for the highlighted audit reports was due during the period March 1, 2023, through June 30, 2023. One (1) item was completed, and one (1) item was extended and assigned a revised due date.

### **Revised Due Date: UMKC Lab Safety – Medium Risk**

One (1) action item associated was extended and assigned a revised due date. This activity is reported in the “Revised Due Date” column of the Management Action Plan Summary table.

This action item was extended due to personnel on leave and the shortage of staff required to complete the action item.

### Management Action Plan Summary as of June 30, 2023

Entity	Report Name	Risk Rating	Total # of Action Plans in Report	Complete	Not Due	Past Due	Revised Due Date	Will Not Be Implemented
<b>UMKC</b>	<b>Lab Safety</b>	Medium	5	3	1		<b>1</b>	
	Conflict of Interest Process	Low/Medium	4		4			
	Export Controls and Sanctions	Medium	17		17			
<b>MUHC</b>	<b>Organized Health Care Arrangement</b>	Medium	3	1	2			
	Network Segregation Phase 1	Medium	2		2			
<b>S&amp;T</b>	Lab Safety	Medium	7	4	3			
<b>UMSL</b>	Scholarships	Medium	6		6			
<b>Totals</b>			<b>44</b>	<b>8</b>	<b>35</b>	<b>0</b>	<b>1</b>	<b>0</b>

KEY: Audits with action plans due between March 1, 2023, and June 30, 2023, are highlighted in GOLD. Audits in **BOLD** font have revised due dates; **RED** are past due.

# University of Missouri System

## Board of Curators

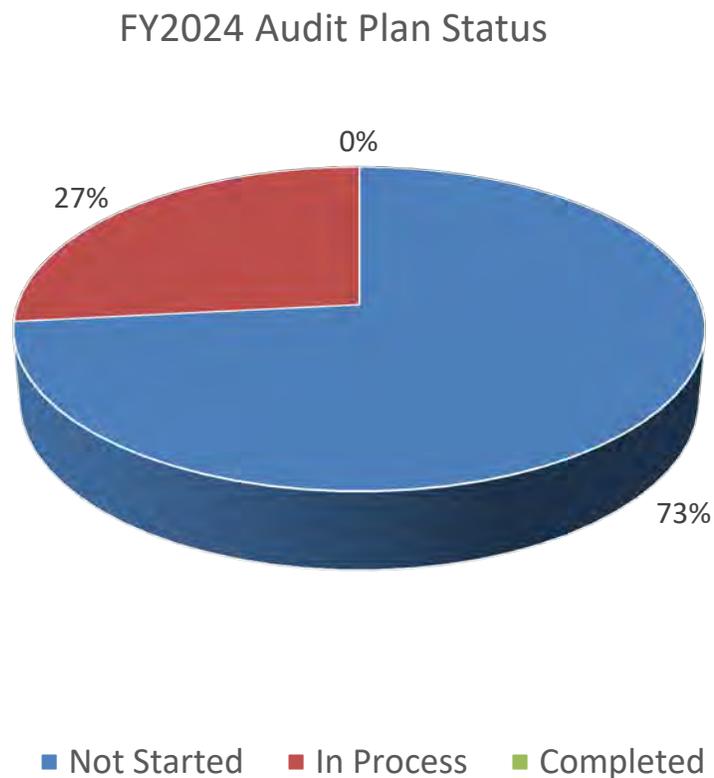
September 7, 2023

Audit, Compliance and Ethics Committee

Audit, Compliance and Ethics Committee  
Quarterly Report  
UM



# Summary of Internal Audit Activity



- Eight internal audits in process
- Twenty-two audits/consulting projects not started
- Actively working four investigations

# Status of Management Action Plans

As of June 30, 2023

- Two action plan items in seven audits were reviewed for completion as of June 30, 2023.
- One of two action plan items, or 50 percent were completed.
- One action plan in one audit were assigned extended due dates.



# University of Missouri System

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# GOVERNANCE, COMPENSATION AND HUMAN RESOURCES COMMITTEE

Keith A. Holloway, Chair

Robert D. Blitz

Julia G. Brncic

Robin R. Wenneker

## I. Governance, Compensation and Human Resources Committee

The Governance, Compensation and Human Resources Committee ("Committee") will review and recommend policies to enhance quality and effectiveness of the Board as well as compensation, benefits and human resources functions of the University.

## II. Governance

### A. Scope

In carrying out its responsibilities regarding governance, the Committee has the central authority of ensuring that board members are prepared to exercise their fiduciary duties and assisting the Board to function effectively, efficiently and with integrity.

### B. Executive Liaison

The General Counsel of the University, or some other person(s) designated by the President of the University with the concurrence of the Board Chair and the Committee Chair, shall serve as executive liaison to the Committee on governance matters and be responsible for transmitting Committee recommendations related to governance.

### C. Responsibilities

In addition to the overall responsibilities of the Committee described above, and in carrying out its responsibilities regarding governance, the Committee shall review and make recommendations on the following matters:

1. ensuring that Board members are prepared to carry out their fiduciary duties to the University;
2. providing and monitoring a substantive orientation process for all new Board members and a continuous board education program for existing Board members;
3. overseeing, or determining with the Board Chair and President, the timing and process of periodic Board self-assessment;
4. establishing expectations and monitoring compliance of individual Board members;
5. ensuring that the Board adheres to its rules of conduct, including conflict-of-interest and disclosure policies, and that it otherwise maintains the highest levels of integrity in everything it does;
6. periodically reviewing the adequacy of the Board's bylaws and other Collected Rules and Regulations adopted by the Board that pertain to its internal operations (all recommendations for bylaws amendment shall first be considered by this Committee);
7. identifying best practices in institutional and Board governance;
8. monitoring and assessing external influences and relationships with affiliated entities;
9. assessing areas of expertise needed in future Board members; and
10. those additional matters customarily addressed by the governance committee of a governing board for an institution of higher education.

### III. Compensation and Human Resources

#### 1. **Scope**

In carrying out its responsibilities regarding compensation and human resources, the Committee reviews and makes recommendations to the Board of Curators on strategies and policies relating to compensation, benefits and other human resources functions and associated programs.

#### 2. **Executive Liaison**

The Vice President and Chief Human Resources Officer of the University, or some other person(s) designated by the President of the University, with the concurrence of the Board Chair and the Committee Chair, shall serve as executive liaison to the Committee on human resources and compensation matters and be responsible for transmitting committee recommendations related to human resources and compensation.

#### 3. **Responsibilities**

In addition to the overall responsibilities of the Committee described above and in carrying out its responsibilities regarding human resources and compensation, the charge of the Committee shall include reviewing and making recommendations to the Board on the following matters:

1. Performance and compensation of individuals reporting directly to the Board:
  1. President
  2. General Counsel
  3. Secretary of the Board of Curators
  4. Chief Audit and Compliance Officer, in conjunction with the Audit, Compliance and Ethics Committee
2. Pursuant to Section 320.020 of the Collected Rules and Regulations, appointment or change of appointment of the following shall be reported to and approved by the Board before the effective date:
  1. Vice Presidents
  2. Chancellors
3. Intercollegiate Athletics

Pursuant to Section 270.060 of the Collected Rules and Regulations, contracts for Directors of Intercollegiate Athletics and Head Coaches may not exceed five (5) years and shall not include buyout clauses calling for the individual to receive more than the balance of the annual base salary the individual would have earned under the remaining terms of the contract, unless approved by the UM Board of Curators upon the recommendation of the President.
4. Benefit, retirement and post retirement plans, including an annual benefits report, as further defined in Section 520.010, Benefit Programs, of the Collected Rules and Regulations.
5. Additional employee benefits including the Education Assistance Program for University Employees, CRR 230.070, and Layoff and Transition Assistance, CRR 350.051.
6. Labor Union Recognition and matters as further defined in Section 350.020, Labor Union Recognition, of the Collected Rules and Regulations.
7. Employment related policies including those related to employee absences, conduct and grievances.

8. Provide oversight over the University of Missouri System's diversity, equity and inclusion programs.
9. Additional matters customarily addressed by the compensation and human resources committee of a governing board for an institution of higher education.

## Collected Rules and Regulations 200.010, 600.020 Amendments

### Executive Summary

On June 27, 2023, the U.S. Supreme Court decision, *Counterman v. Colorado*, interpreted the First Amendment in a way that establishes a new standard for laws and rules that address conduct such as stalking or threats. Essentially, the Court ruled that the First Amendment required a “recklessness” test. In addition to engaging in conduct that a reasonable person would find threatening, the accused person had to realize they were being threatening or at least recklessly disregard that they were being threatening.

UM System’s Collected Rules and Regulations 200.010 and 600.020 define “stalking” and “threats.” The proposed revisions incorporate a recklessness standard based on language used in the Supreme Court’s opinion. Board materials include a clean and redlined copy of the proposed language adjustments.

- **200.010** Standard of Conduct
- **600.020** Sexual Harassment under Title IX - for matters involving conduct alleged to have occurred on or after August 14, 2020
- **600.020** Sex Discrimination, Sexual Harassment and Sexual Misconduct in Education/Employment Policy - for matters involving conduct alleged to have occurred prior to August 14, 2020



Curator Siquefield  
Curator Wenneker  
Curator Williams

The motion \_\_\_\_\_.

# 200.010 Standard of Conduct

Amended Bd. Min. 3-20-81; Bd. Min. 8-3-90, Bd. Min 5-19-94; Bd. Min. 5-24-01, Bd. Min. 7-27-12; Bd. Min. 12-7-12; Bd. Min. 6-19-14; Revised 9-22-14 by Executive Order 41; Revised 11-3-15 by Executive Order 41; Amended 2-9-17; Bd. Min. 9-24-20; Bd. Min. 11-19-20; Amended 6-29-23.

The Standard of Conduct exists to support the mission of the University of Missouri as an educational institution. The following expectations have been established in order to protect a specialized educational environment conducive to learning which fosters integrity, academic success, personal and professional growth, and responsible citizenship.

A student at the University assumes an obligation to behave in a manner compatible with the University's function as an educational institution and voluntarily enters into a community of high achieving scholars. A student organization recognized by the University of Missouri also assumes an obligation to behave in a manner compatible with the University's function as an educational institution. Consequently, students and student organizations must adhere to community standards in accordance with the University's mission and expectations. Students and student organizations are expected to demonstrate responsibility for their actions; respect the rights and property of others; and observe federal, state, and local laws, as well as University rules and policies.

The Standard of Conduct is implemented through Section 200.020 Rules of Procedures in Student or Student Organization Conduct Matters. It is to be implemented and interpreted in a manner that supports the University's mission as an educational institution and protects the University's educational environment.

- A. Jurisdiction of the University of Missouri generally shall be limited to conduct which occurs on the University of Missouri premises or at University-sponsored or University-supervised functions. However, the University may take appropriate action, including, but not limited to the imposition of sanctions under Section 200.020 and Chapter 600 of the Collected Rules and Regulations against students and student organizations for conduct occurring in other settings, including off campus, for the following purposes: (1) in order to protect the health, safety, welfare, and well-being of students, employees, and other members of the University community, or (2) if there are effects of the conduct that materially interfere with or limit any person's or entity's ability to participate in or benefit from the University's educational programs, activities, or employment. Jurisdiction of conduct occurring in other settings, including off campus, may be exercised at the discretion of the University for these stated purposes, but shall not be exercised in any way that would interfere with a student's protected constitutional rights.
- B. A student organization is a recognized student organization which has received official approval in accordance with Section 250.010 of the Collected Rules and Regulations. Action against student organizations under the Standard of Conduct and Rules of Procedure may be separate from action taken against individual members. A student organization will be considered responsible for conduct outlined in Section 200.010.C only when there are circumstances indicating that the organization should bear collective responsibility for the conduct, and not solely because its individual members engaged in prohibited conduct. To determine whether a student organization is responsible for conduct outlined in Section 200.010.C and the extent to which it should be sanctioned, all relevant circumstances will be considered, including but not limited to

the following:

1. Factors weighing in favor of organizational responsibility:
    - a. The student organization, through its officers or practices or customs, by any means approved, condoned, allowed, encouraged, assisted or promoted such prohibited conduct;
    - b. The prohibited conduct was committed, permitted, encouraged, aided, or assisted by one or more student organization executive officers or by one or more members while acting with authority on behalf of the student organization;
    - c. Student organization resources, such as funds, group communications, information technology resources, or organization property or venues, were used for the prohibited conduct;
    - d. The student organization, through its officers or advisers, materially interferes or interfered with any investigation or conduct proceedings related to the prohibited conduct;
    - e. A policy, protocol, or official practice of the student organization caused or materially contributed to the prohibited conduct; and/or
    - f. In the absence of any evidence of the factors listed in subdivisions 1. – 5. above, the prohibited conduct was committed, participated in, encouraged, aided, or assisted by twenty-five percent or more of the student organization's members;
  2. Factors weighing against organizational responsibility:
    - a. The student organization had policies, protocols, or official practices in place to prevent or deter the prohibited conduct;
    - b. The student organization had provided guidance, education, or training to the individual members involved to prevent or deter the prohibited conduct;
    - c. The student organization took prompt and effective action to prevent or stop the prohibited conduct or mitigate its effects once the organization or its officers became aware or reasonably should have become aware of the prohibited conduct;
    - d. The student organization or its officers promptly reported the prohibited conduct to an appropriate University official and any other appropriate authorities; and/or
    - e. The student organization addressed any prohibited conduct of its members through an organizational sanction or punishment.
- C. Prohibited Conduct for which students and student organizations, when applicable, are subject to sanctions falls into the following categories:
1. Academic dishonesty, including but not limited to cheating, plagiarism, unauthorized use of artificially generated content, or sabotage. The Board of Curators recognizes that academic honesty is essential for the intellectual life of the University. Faculty members have a special obligation to expect high standards of academic honesty in all student

work. Students have a special obligation to adhere to such standards. In all cases of academic dishonesty, the instructor shall make an academic judgment about the student's grade on that work and in that course, which shall not be considered a sanction for prohibited conduct under this rule. The instructor shall, consistent with other policies, report the alleged academic dishonesty to the Primary Administrative Officer.

- a. The term cheating includes but is not limited to: (i) use of any unauthorized assistance in taking quizzes, tests, examinations or other assessments; (ii) dependence upon the aid of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments; (iii) acquisition or possession without permission of tests or other academic material belonging to a member of the University faculty or staff; or (iv) knowingly providing any unauthorized assistance to another student on quizzes, tests, examinations, or other assessments.
- b. The term plagiarism includes, but is not limited to: (i) use by paraphrase or direct quotation of the published work of another source without properly crediting the author with footnotes, citations or bibliographical reference; (ii) unacknowledged use of materials prepared by another person or agency engaged in the selling of term papers or other academic materials; or (iii) unacknowledged use of original work/material that has been produced through collaboration with others without release in writing from collaborators.
- c. The term unauthorized use of artificially generated content, includes, but is not limited to (i) use of artificial intelligence tools or other tools that generate artificial content in taking quizzes, tests, examinations, or other assessments without permission from the instructor; (ii) submitting work for evaluation as one's own that was produced in material or substantial part through use of artificial intelligence tools or other tools that generate artificial content without permission from the instructor; (iii) using artificial intelligence tools or other tools that generate artificial content in a manner contrary to instructions from the instructor; or (iv) using artificial intelligence tools or other tools that generate artificial content in a manner that violates any other provision of these rules concerning academic dishonesty. Use of commonly available tools such as spelling or grammar checking software or features of software that propose anticipated words or phrases while text is being written will not be considered unauthorized use of artificially generated content unless such use is contrary to instructions from the instructor.
- d. The term sabotage includes, but is not limited to, the unauthorized interference with, modification of, or destruction of the work or intellectual property of another member of the University community.

2. Forgery, alteration, or misuse of University documents, records or identification, or furnishing information to the University that the student or student organization knows or reasonably should know is false.
3. Physical abuse or other physical conduct which threatens or endangers the health or safety of any person.
4. Stalking another by ~~following or~~ engaging in a course of conduct directed at a specific person with no legitimate purpose that puts another person reasonably in fear for one's safety or knowing or consciously disregarding a substantial and unjustifiable risk that the course of conduct would cause a reasonable person to under the circumstances be frightened, intimidated or emotionally distressed—(A) fear for their safety or the safety of others; or (B) suffer substantial emotional distress.
5. Violation of the University's Equal Employment/Education Opportunity and Nondiscrimination Policy located at Section 600.010 of the Collected Rules and Regulations.
6. Violation of the University's Sexual Harassment under Title IX Policy located at Section 600.020 of the Collected Rules and Regulations.
7. Threats, defined as communication of a serious expression of intent to commit an act of unlawful violence against an individual or identifiable group, such that the individual or group would reasonably fear violence, regardless of whether the communicating individual actually intends to carry out the threat, and in which the person engaging in the communication knew or consciously disregarded a substantial and unjustifiable risk that it would have such an effect on the individual or identifiable group.
8. Participating in attempted or actual taking of, damage to, or possession without permission of property of the University or of a member of the University community or a campus visitor.
9. Unauthorized possession, duplication or use of keys or other means of access to any University facilities or unauthorized entry to or use of University facilities, property or resources.
10. Misuse of University or personal property in a manner that creates a safety hazard or unauthorized use of safety equipment.
11. Deliberately setting off a fire or other emergency alarm without justified reason or knowingly giving a false report of a crime or emergency.
12. Violation of the available written policies, rules or regulations of the University or any of its units applicable to the student under the circumstances or of material conduct standards identified in contracts or agreements the student has entered into with the University, including, but not limited to, those governing residence in the University-provided housing, or the use of University facilities, or student organizations, or the time, place or manner of public expression.
13. Violation of applicable federal, state, foreign or local law or ordinance, that directly impacts the University's activities, programs, property, students, employees, or volunteers or indicates that the individual poses a risk to the safety, welfare, or well-being of the University's students, employees, or volunteers.
14. Manufacture, use, possession, sale or distribution of alcoholic beverages or any controlled substance under state or federal law without proper prescription or required license or as expressly

permitted by law or University regulations, including operating a vehicle on University property, or on streets or roadways adjacent to and abutting a campus, under the influence of alcohol or a controlled substance as prohibited by law of the state of Missouri. To the extent there is any inconsistency between state and federal law as to circumstances in which manufacture, use, possession, sale or distribution of a substance is expressly permitted, federal law will govern to the extent appropriate to facilitate the University's compliance with the Drug Free Schools and Communities Act and any other applicable federal law.

15. Substantially disrupting, or inciting others to substantially disrupt:
  - a. University operations, functions or activities including, but not limited to classes or other teaching, research, study, lectures, performances, meetings, interviews, living or learning communities, administrative business, or ceremonies or other public events, regardless of whether such operations, functions or activities are conducted in-person or through information technology resources; or
  - b. Authorized or permissible non-University activities that occur at a location owned or controlled by the University or through information technology resources provided by the University.
16. Failure to comply with lawful directions of University officials acting in the performance of their duties or failure to identify one's self to University officials acting in the performance of their duties when reasonably requested to do so and upon reasonable explanation of the reason for the request for identification.
17. Failure to comply with and complete all sanctions and remedial actions applied under Section 200.020 or Chapter 600 within the time frame specified.
18. The possession or use of firearms, explosives, other weapons, or hazardous chemicals that violates federal or state law or applicable foreign law or University rules.
19. Hazing, defined as an act that endangers the mental or physical health or safety of a student, or an act that is likely to cause physical or psychological harm to any person within the University community, or that destroys or removes, damages, defaces, or tampers with public or private property, for the purpose of initiation, admission into, affiliation with, or as a condition for continued membership in a group or organization. Participation or cooperation by the person(s) being hazed does not excuse the violation. Failure by a group's or organization's executive officers to intervene to prevent, discourage, and/or report hazing of which they are aware or reasonably should be aware also will be deemed a violation of this policy.
20. Misuse of information technology resources in accordance with University policy, including but not limited to:
  - a. Actual or attempted theft or other abuse;
  - b. Unauthorized entry into a file to use, read, or change the contents, or for any other purpose;
  - c. Unauthorized transfer of a file;
  - d. Unauthorized use of another individual's identification and password;

- e. Use of information technology facilities to interfere with the work of another student, faculty member, or University official;
  - f. Use of information technology facilities to interfere with normal operation of any University information technology system;
  - g. Knowingly causing a virus, malware, or other means designed to disrupt, damage or gain unauthorized access to become installed in any information technology system or file; or
  - h. Violation of Section 110.005 of the Collected Rules or Regulations or other University policy governing use of computing resources.
21. Retaliation, False Reporting, Witness Intimidation or Harassment, and Interference.
- a. Retaliation is any adverse action taken against a person because of that person's participation or refusal to participate in the process set forth in CRR 200.020, provided that the exercise of rights protected under the First Amendment does not constitute retaliation prohibited under this section. Any person who engages in such retaliation shall be subject to disciplinary action, up to and including expulsion or termination, in accordance with applicable procedures. Any person who believes they have been subjected to retaliation is encouraged to notify the Primary Administrative Officer. The University will promptly respond to all claims of retaliation in accordance with this policy.
  - b. False reporting is making an intentional false report or accusation in relation to this policy as opposed to a report or accusation, which, even if erroneous, is made in good faith. False reporting is prohibited.
  - c. No individual, directly or through others, may take any action which attempts to or actually intimidates any potential Party or witness in the student conduct process, or which may interfere with the student conduct process.
  - d. All University employees and students must be truthful and candid when making any statement or providing any information or evidence to the University throughout the student conduct process, and all documentary evidence must be genuine and accurate. The fact that a determination has been made that a student has or has not engaged in prohibited conduct is not sufficient grounds, by itself, to declare that a false statement or fraudulent evidence has been provided by a Party or witness.
  - e. Charging an individual with a policy violation for making a materially false statement in bad faith in the course of any proceedings under this policy does not constitute retaliation provided, however that a determination regarding responsibility, alone, is not sufficient to conclude that any Party made a materially false statement in bad faith.

22. Attempting to commit or intentionally and materially aiding or inciting others to commit any of the forms of prohibited conduct stated in this rule.

# 200.010 Standard of Conduct

Amended Bd. Min. 3-20-81; Bd. Min. 8-3-90, Bd. Min 5-19-94; Bd. Min. 5-24-01, Bd. Min. 7-27-12; Bd. Min. 12-7-12; Bd. Min. 6-19-14; Revised 9-22-14 by Executive Order 41; Revised 11-3-15 by Executive Order 41; Amended 2-9-17; Bd. Min. 9-24-20; Bd. Min. 11-19-20; Amended 6-29-23.

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The Standard of Conduct is implemented through Section 200.020 Rules of Procedures in Student or Student Organization Conduct Matters. It is to be implemented and interpreted in a manner that supports the University's mission as an educational institution and protects the University's educational environment.

- A. Jurisdiction of the University of Missouri generally shall be limited to conduct which occurs on the University of Missouri premises or at University-sponsored or University-supervised functions. However, the University may take appropriate action, including, but not limited to the imposition of sanctions under Section 200.020 and Chapter 600 of the Collected Rules and Regulations against students and student organizations for conduct occurring in other settings, including off campus, for the following purposes: (1) in order to protect the health, safety, welfare, and well-being of students, employees, and other members of the University community, or (2) if there are effects of the conduct that materially interfere with or limit any person's or entity's ability to participate in or benefit from the University's educational programs, activities, or employment. Jurisdiction of conduct occurring in other settings, including off campus, may be exercised at the discretion of the University for these stated purposes, but shall not be exercised in any way that would interfere with a student's protected constitutional rights.
- B. A student organization is a recognized student organization which has received official approval in accordance with Section 250.010 of the Collected Rules and Regulations. Action against student organizations under the Standard of Conduct and Rules of Procedure may be separate from action taken against individual members. A student organization will be considered responsible for conduct outlined in Section 200.010.C only when there are circumstances indicating that the organization should bear collective responsibility for the conduct, and not solely because its individual members engaged in prohibited conduct. To determine whether a student organization is responsible for conduct outlined in Section 200.010.C and the extent to which it should be sanctioned, all relevant circumstances will be considered, including but not limited to

the following:

1. Factors weighing in favor of organizational responsibility:

- a. The student organization, through its officers or practices or customs, by any means approved, condoned, allowed, encouraged, assisted or promoted such prohibited conduct;
- b. The prohibited conduct was committed, permitted, encouraged, aided, or assisted by one or more student organization executive officers or by one or more members while acting with authority on behalf of the student organization;
- c. Student organization resources, such as funds, group communications, information technology resources, or organization property or venues, were used for the prohibited conduct;
- d. The student organization, through its officers or advisers, materially interferes or interfered with any investigation or conduct proceedings related to the prohibited conduct;
- e. A policy, protocol, or official practice of the student organization caused or materially contributed to the prohibited conduct; and/or
- f. In the absence of any evidence of the factors listed in subdivisions 1. – 5. above, the prohibited conduct was committed, participated in, encouraged, aided, or assisted by twenty-five percent or more of the student organization's members;

2. Factors weighing against organizational responsibility:

- a. The student organization had policies, protocols, or official practices in place to prevent or deter the prohibited conduct;
- b. The student organization had provided guidance, education, or training to the individual members involved to prevent or deter the prohibited conduct;
- c. The student organization took prompt and effective action to prevent or stop the prohibited conduct or mitigate its effects once the organization or its officers became aware or reasonably should have become aware of the prohibited conduct;
- d. The student organization or its officers promptly reported the prohibited conduct to an appropriate University official and any other appropriate authorities; and/or
- e. The student organization addressed any prohibited conduct of its members through an organizational sanction or punishment.

C. Prohibited Conduct for which students and student organizations, when applicable, are subject to sanctions falls into the following categories:

1. Academic dishonesty, including but not limited to cheating, plagiarism, unauthorized use of artificially generated content, or sabotage. The Board of Curators recognizes that academic honesty is essential for the intellectual life of the University. Faculty members have a special obligation to expect high standards of academic honesty in all student

work. Students have a special obligation to adhere to such standards. In all cases of academic dishonesty, the instructor shall make an academic judgment about the student's grade on that work and in that course, which shall not be considered a sanction for prohibited conduct under this rule. The instructor shall, consistent with other policies, report the alleged academic dishonesty to the Primary Administrative Officer.

- a. The term cheating includes but is not limited to: (i) use of any unauthorized assistance in taking quizzes, tests, examinations or other assessments; (ii) dependence upon the aid of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments; (iii) acquisition or possession without permission of tests or other academic material belonging to a member of the University faculty or staff; or (iv) knowingly providing any unauthorized assistance to another student on quizzes, tests, examinations, or other assessments.
- b. The term plagiarism includes, but is not limited to: (i) use by paraphrase or direct quotation of the published work of another source without properly crediting the author with footnotes, citations or bibliographical reference; (ii) unacknowledged use of materials prepared by another person or agency engaged in the selling of term papers or other academic materials; or (iii) unacknowledged use of original work/material that has been produced through collaboration with others without release in writing from collaborators.
- c. The term unauthorized use of artificially generated content, includes, but is not limited to (i) use of artificial intelligence tools or other tools that generate artificial content in taking quizzes, tests, examinations, or other assessments without permission from the instructor; (ii) submitting work for evaluation as one's own that was produced in material or substantial part through use of artificial intelligence tools or other tools that generate artificial content without permission from the instructor; (iii) using artificial intelligence tools or other tools that generate artificial content in a manner contrary to instructions from the instructor; or (iv) using artificial intelligence tools or other tools that generate artificial content in a manner that violates any other provision of these rules concerning academic dishonesty. Use of commonly available tools such as spelling or grammar checking software or features of software that propose anticipated words or phrases while text is being written will not be considered unauthorized use of artificially generated content unless such use is contrary to instructions from the instructor.
- d. The term sabotage includes, but is not limited to, the unauthorized interference with, modification of, or destruction of the work or intellectual property of another member of the University community.

2. Forgery, alteration, or misuse of University documents, records or identification, or furnishing information to the University that the student or student organization knows or reasonably should know is false.
3. Physical abuse or other physical conduct which threatens or endangers the health or safety of any person.
4. Stalking another by engaging in a course of conduct directed at a specific person knowing or consciously disregarding a substantial and unjustifiable risk that the course of conduct would cause a reasonable person to —(A) fear for their safety or the safety of others; or (B) suffer substantial emotional distress.
5. Violation of the University's Equal Employment/Education Opportunity and Nondiscrimination Policy located at Section 600.010 of the Collected Rules and Regulations.
6. Violation of the University's Sexual Harassment under Title IX Policy located at Section 600.020 of the Collected Rules and Regulations.
7. Threats, defined as communication of a serious expression of intent to commit an act of unlawful violence against an individual or identifiable group, such that the individual or group would reasonably fear violence, regardless of whether the communicating individual actually intends to carry out the threat, and in which the person engaging in the communication knew or consciously disregarded a substantial and unjustifiable risk that it would have such an effect on the individual or identifiable group.
8. Participating in attempted or actual taking of, damage to, or possession without permission of property of the University or of a member of the University community or a campus visitor.
9. Unauthorized possession, duplication or use of keys or other means of access to any University facilities or unauthorized entry to or use of University facilities, property or resources.
10. Misuse of University or personal property in a manner that creates a safety hazard or unauthorized use of safety equipment.
11. Deliberately setting off a fire or other emergency alarm without justified reason or knowingly giving a false report of a crime or emergency.
12. Violation of the available written policies, rules or regulations of the University or any of its units applicable to the student under the circumstances or of material conduct standards identified in contracts or agreements the student has entered into with the University, including, but not limited to, those governing residence in the University-provided housing, or the use of University facilities, or student organizations, or the time, place or manner of public expression.
13. Violation of applicable federal, state, foreign or local law or ordinance, that directly impacts the University's activities, programs, property, students, employees, or volunteers or indicates that the individual poses a risk to the safety, welfare, or well-being of the University's students, employees, or volunteers.
14. Manufacture, use, possession, sale or distribution of alcoholic beverages or any controlled substance under state or federal law without proper prescription or required license or as expressly permitted by law or University regulations, including operating a vehicle on University property, or on streets or roadways adjacent to and

abutting a campus, under the influence of alcohol or a controlled substance as prohibited by law of the state of Missouri. To the extent there is any inconsistency between state and federal law as to circumstances in which manufacture, use, possession, sale or distribution of a substance is expressly permitted, federal law will govern to the extent appropriate to facilitate the University's compliance with the Drug Free Schools and Communities Act and any other applicable federal law.

15. Substantially disrupting, or inciting others to substantially disrupt:
  - a. University operations, functions or activities including, but not limited to classes or other teaching, research, study, lectures, performances, meetings, interviews, living or learning communities, administrative business, or ceremonies or other public events, regardless of whether such operations, functions or activities are conducted in-person or through information technology resources; or
  - b. Authorized or permissible non-University activities that occur at a location owned or controlled by the University or through information technology resources provided by the University.
16. Failure to comply with lawful directions of University officials acting in the performance of their duties or failure to identify one's self to University officials acting in the performance of their duties when reasonably requested to do so and upon reasonable explanation of the reason for the request for identification.
17. Failure to comply with and complete all sanctions and remedial actions applied under Section 200.020 or Chapter 600 within the time frame specified.
18. The possession or use of firearms, explosives, other weapons, or hazardous chemicals that violates federal or state law or applicable foreign law or University rules.
19. Hazing, defined as an act that endangers the mental or physical health or safety of a student, or an act that is likely to cause physical or psychological harm to any person within the University community, or that destroys or removes, damages, defaces, or tampers with public or private property, for the purpose of initiation, admission into, affiliation with, or as a condition for continued membership in a group or organization. Participation or cooperation by the person(s) being hazed does not excuse the violation. Failure by a group's or organization's executive officers to intervene to prevent, discourage, and/or report hazing of which they are aware or reasonably should be aware also will be deemed a violation of this policy.
20. Misuse of information technology resources in accordance with University policy, including but not limited to:
  - a. Actual or attempted theft or other abuse;
  - b. Unauthorized entry into a file to use, read, or change the contents, or for any other purpose;
  - c. Unauthorized transfer of a file;
  - d. Unauthorized use of another individual's identification and password;

- e. Use of information technology facilities to interfere with the work of another student, faculty member, or University official;
  - f. Use of information technology facilities to interfere with normal operation of any University information technology system;
  - g. Knowingly causing a virus, malware, or other means designed to disrupt, damage or gain unauthorized access to become installed in any information technology system or file; or
  - h. Violation of Section 110.005 of the Collected Rules or Regulations or other University policy governing use of computing resources.
21. Retaliation, False Reporting, Witness Intimidation or Harassment, and Interference.

- a. Retaliation is any adverse action taken against a person because of that person's participation or refusal to participate in the process set forth in CRR 200.020, provided that the exercise of rights protected under the First Amendment does not constitute retaliation prohibited under this section. Any person who engages in such retaliation shall be subject to disciplinary action, up to and including expulsion or termination, in accordance with applicable procedures. Any person who believes they have been subjected to retaliation is encouraged to notify the Primary Administrative Officer. The University will promptly respond to all claims of retaliation in accordance with this policy.
- b. False reporting is making an intentional false report or accusation in relation to this policy as opposed to a report or accusation, which, even if erroneous, is made in good faith. False reporting is prohibited.
- c. No individual, directly or through others, may take any action which attempts to or actually intimidates any potential Party or witness in the student conduct process, or which may interfere with the student conduct process.
- d. All University employees and students must be truthful and candid when making any statement or providing any information or evidence to the University throughout the student conduct process, and all documentary evidence must be genuine and accurate. The fact that a determination has been made that a student has or has not engaged in prohibited conduct is not sufficient grounds, by itself, to declare that a false statement or fraudulent evidence has been provided by a Party or witness.
- e. Charging an individual with a policy violation for making a materially false statement in bad faith in the course of any proceedings under this policy does not constitute retaliation provided, however that a determination regarding responsibility, alone, is not sufficient to conclude that any Party made a materially false statement in bad faith.

22. Attempting to commit or intentionally and materially aiding or inciting others to commit any of the forms of prohibited conduct stated in this rule.

# 600.020 Sex Discrimination, Sexual Harassment and Sexual Misconduct in Education/Employment Policy - for matters involving conduct alleged to have occurred prior to August 14, 2020

Executive Order 40, 4-8-14; Revised 6-19-14; Revised 9-22-14 by Executive Order 41. Revised 2-9-17 with an effective date of 3-1-17.

A. Sex Discrimination, Sexual Harassment and Sexual Misconduct in Education. The University is committed to affording equal employment and education opportunities to its employees and students, and to creating an environment free from discrimination (see Section 600.010 of the Collected Rules and Regulations). In furtherance of these commitments, both University policy and applicable state and federal law, prohibit all students, employees, volunteers and visitors at the University from engaging in discrimination on the basis of any protected characteristic, including sex, pregnancy, gender identity, and gender expression. In addition, University policy and the law prohibit sexual misconduct, sexual harassment, stalking on the basis of sex, dating/intimate partner violence, and sexual exploitation, as defined in Section 600.020.B. As used in this policy, the word "sex" is also inclusive of the term "gender." This policy applies to any phase of its employment process, any phase of its admission or financial aid programs, and all other aspects of its educational programs or activities. Additionally, this policy applies to allegations of sexual misconduct or allegations of other forms of sex discrimination, as defined in Section 600.020.B., occurring in other settings, including off-campus, if there are effects of the conduct that interfere with or limit any person's ability to participate in or benefit from the University's educational programs, activities or employment. Notices of nondiscrimination are posted online and in physical locations for the UM System and each of the campuses.

## B. Definitions

1. Sex Discrimination. Sex discrimination is conduct that is based upon an individual's sex, pregnancy, gender identity, or gender expression that adversely affects a term or condition of an individual's employment, education, living environment, or participation in a University activity. In addition, sexual harassment, sexual misconduct, sexual exploitation, stalking on the basis of sex and dating/intimate partner violence, as further defined below, are forms of sex discrimination which are prohibited under this policy.
2. Sexual Harassment. Sexual harassment is defined as:
  - a. Unwelcome sexual advances or requests for sexual activity by a person or persons in a position of power or authority to another person; or

- b. Other unwelcome verbal or physical conduct of a sexual nature or because of sex, pregnancy, gender identity, or gender expression when:
  - (1) Submission to or rejection of such conduct is used explicitly or implicitly as a condition for academic or employment decisions; or
  - (2) Such conduct creates a hostile environment by being sufficiently severe or pervasive or objectively offensive that it interferes with, limits or denies the ability to participate in or benefit from the University's educational programs, activities, or employment.
3. Sexual Misconduct. Sexual misconduct includes: 1) Nonconsensual sexual intercourse; 2) Nonconsensual sexual contact involving the sexual touching of a body part (i.e., the lips, genitals, breast, anus, groin, or buttocks of another person) or the nonconsensual sexual touching of another with one's own genitals whether directly or through the clothing; 3) Exposing one's genitals to another under circumstances in which one should reasonably know that the conduct is likely to cause affront or alarm; or 4) Sexual exploitation.
4. Stalking on the Basis of Sex. Stalking on the basis of sex is following or engaging in a course of conduct on the basis of sex with no legitimate purpose knowing or consciously disregarding a substantial and unjustifiable risk that the course of conduct ~~that~~ makes another person reasonably concerned for their safety or would cause a reasonable person under the circumstances to be frightened, intimidated or emotionally distressed.
5. Dating/Intimate Partner Violence. Violence, threats of violence, intimidation and acts of coercion committed by a person who is or has been in a social relationship of a romantic or intimate nature with the recipient of the violent behavior.
6. Sexual Exploitation. Sexual exploitation occurs when one person takes nonconsensual or abusive sexual advantage of another person for one's own advantage or benefit or for the advantage or benefit of anyone other than the person being exploited and which behavior does not constitute any other form of sexual misconduct. Examples of sexual exploitation include, but are not limited to, the following activities done without the consent of all participants:
  - a. Invasion of sexual privacy;
  - b. Prostituting another person;
  - c. Taping or recording of sexual activity;
  - d. Going beyond the boundaries of consent to sexual activity (e.g., letting your friends hide to watch you engaging in sexual activity);
  - e. Engaging in voyeurism;
  - f. Knowingly transmitting an STI, STD, venereal disease or HIV to another person;
  - g. Inducing another to expose their genitals;
  - h. Nonconsensual distribution of intimate images;

- i. Use or distribution of drugs or alcohol with intent to facilitate sexual contact without consent (i.e., predatory drugs or alcohol).
- 7. Consent to Sexual Activity. Consent to sexual activity is knowing and voluntary. Consent to sexual activity requires of all involved persons a conscious and voluntary agreement to engage in sexual activity. Each person engaged in the sexual activity must have met the legal age of consent. It is the responsibility of each person to ensure they have the consent of all others engaged in the sexual activity. Consent must be obtained at the time of the specific activity and can be withdrawn at any time. Consent, lack of consent or withdrawal of consent may be communicated by words or non-verbal acts.  
Someone who is incapacitated cannot consent. Silence or absence of resistance does not establish consent. The existence of a dating relationship or past sexual relations between the Parties involved should never by itself be assumed to be an indicator of consent. Further, consent to one form of sexual activity does not imply consent to other forms of sexual activity. Consent to engage in sexual activity with one person does not imply consent to engage in sexual activity with another. Coercion and force, or threat of either, invalidates consent.
- 8. Incapacitated or incapacitation. A state in which rational decision-making or the ability to consent is rendered impossible because of a person's temporary or permanent physical or mental impairment, including but not limited to physical or mental impairment resulting from drugs or alcohol, disability, sleep, unconsciousness or illness. Consent does not exist when the Respondent knew or should have known of the other individual's incapacitation. Incapacitation is determined based on the totality of the circumstances. Incapacitation is more than intoxication but intoxication can cause incapacitation.  
Factors to consider in determining incapacity include, but are not limited to, the following:
  - a. Lack of awareness of circumstances or surroundings (e.g., an inability to understand, either temporarily or permanently, the who, what, where, how and/or why of the circumstances; blackout state)
  - b. Inability to physically or verbally communicate coherently, particularly with regard to consent (e.g., slurred or incoherent speech)
  - c. Lack of full control over physical movements (e.g., difficulty walking or standing without stumbling or assistance)
  - d. Physical symptoms (e.g., vomiting or incontinence).
- C. Title IX Coordinators. Duties and responsibilities of the University's Title IX Coordinators include monitoring and oversight of overall implementation of Title IX compliance at the University, including coordination of training, education, communications and coordination with the Equity Resolution Processes for faculty, staff, students and other members of the University community and investigation of complaints of sex discrimination. The University may designate Deputy Coordinators as needed to assist in fulfillment of the Coordinator's duties and responsibilities.  
NOTE: All references to "Title IX Coordinator" throughout this policy refer to the Title IX Coordinator or the Coordinator's designee.

Any person having inquiries concerning the application of Title IX should contact their respective UM System or campus Title IX Coordinator. The following individuals serve as Title IX Coordinators and are designated to handle inquiries regarding the Anti-Discrimination policies and to serve as coordinators for purposes of Title IX compliance:

University of Missouri System and University of Missouri-Columbia

Andy Hayes, J.D.

Title IX Coordinator

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University of Missouri Health System

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Title IX Coordinator

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Telephone: 573-882-8187

Email: [wareja@health.missouri.edu](mailto:wareja@health.missouri.edu)

If the Complaint involves the University's Title IX Coordinator, Complaints may be made to the System Title IX Coordinator. If the Complaint involves the System Title IX Coordinator, reports may be made to the System President. The contact information for the System President is:

Office of the President

105 Jesse Hall

Columbia, MO 65211

Telephone: (573) 882-2011

Email: [president@umsystem.edu](mailto:president@umsystem.edu)

NOTE: The above-listed contact information for Title IX Coordinators may be updated as needed and without requiring the approval of the Board of Curators.

#### D. Reporting Sex Discrimination, Including Sexual Harassment and Sexual Misconduct

1. Students, Employees, Volunteers, Visitors, and Patients. Students, employees, volunteers, visitors, and patients of the University who have experienced any form of sex discrimination, sexual harassment or sexual misconduct, are encouraged to report the incident promptly to the appropriate Title IX Coordinator listed in Section 600.020.C. above. In addition, students, volunteers, visitors, and patients of the University who have witnessed such conduct are encouraged to report the incident promptly to the appropriate Title IX Coordinator. The University will investigate and appropriately resolve all such reports pursuant to one of its Equity Resolution Processes (see Sections 600.030, 600.040, 600.050, 600.060). For questions regarding confidentiality or requests that the Complaint not be pursued, see Section 600.020.E. below. In order to foster reporting and participation, the University may provide amnesty to Complainants and witnesses for minor student conduct violations ancillary to the incident.
2. Mandated Reporters. Any employee of the University, except as noted below, who becomes aware of sex discrimination as defined in this policy (including sexual harassment, sexual misconduct, stalking on the basis of sex, dating/intimate partner violence or sexual exploitation) is a Mandated Reporter, regardless of whether the recipient of the behavior is a student, employee, volunteer or visitor of the University.
3. Employees with a Legal Obligation or Privilege of Confidentiality. Employees with a legal obligation or privilege of confidentiality (including health care providers, counselors, lawyers, and their associated staff) are not considered Mandated Reporters and are not required to report when the information is learned in the course of a confidential communication. This also means that the employee seeking the exemption is employed by the University for that specific purpose and was acting in that capacity when the confidential disclosure was made. If the information is not learned in the course of confidential communication (for example, behavior is observed in class) then the employee has the same obligation as a Mandated Reporter.
4. Designated Confidential Employees. Consistent with the law and upon approval from the Office of the General Counsel, campuses may also designate non-professional counselors or advocates as confidential for purposes of this policy and, therefore, excluded from the definition of

Mandated Reporters. However, these individuals are required once per month to report to the Title IX Coordinator aggregate, non-personally identifiable information regarding incidents of sex discrimination reported to them. The aggregate data report should contain general information about individual incidents of sexual violence such as the nature, date, time, and general location of the incident. Confidentiality in this context is not the same as privilege under the law.

5. Required Reporting and Disclosure. A mandated Reporter is required to promptly report the information to the appropriate Title IX Coordinator. The Mandated Report must be made regardless of whether the person reporting the information to the Mandated Reporter requests confidentiality and regardless of how the Mandated Reporter becomes aware of the offensive behavior (personal observation, direct information from the subject of the behavior, indirect information from a third party, etc.). If the Complainant requests confidentiality or that the charges not be pursued, the Mandated Reporter should warn the Complainant that, at this stage in the process, the Mandated Reporter must report all known information to the Title IX Coordinator.
6. Content of Mandated Report to Title IX Coordinator. Mandated Reporters must report all details that they possess. This includes names of the Parties, if known, and all other information in the Mandated Reporter's possession.

#### E. Requests for Confidentiality or Not to Pursue an Investigation

1. The Title IX Coordinator or other appropriate official should inform and obtain the consent from the Complainant before beginning an investigation. If the Complainant requests confidentiality or asks that the Complaint not be pursued, the Title IX Coordinator should take all reasonable steps to investigate and respond to the Complaint consistent with the request for confidentiality or request not to pursue an investigation. If a Complainant requests confidentiality or insist that identifiable information, such as the Complainant's name, not be disclosed to the Respondent, the Title IX Coordinator should inform the Complainant that the institution's ability to respond may be limited. The Title IX Coordinator should evaluate the Complainant's request in the context of providing a safe and nondiscriminatory environment for the University community.
2. If, after due deliberation and based on the nature and severity of the Complaint, the Title IX Coordinator determines there is a sufficient basis to proceed with the Complaint, the Title IX Coordinator may initiate an investigation notwithstanding a Complainant's request that the Complaint not be pursued. Such a decision should be well-reasoned and documented. Documentation of the decision will be maintained by the Title IX Coordinator. In such cases, the Title IX Coordinator will inform the Complainant of the decision to commence an investigation. Alternatively, if after due deliberation and based on the nature and severity of the Complaint, the Title IX Coordinator determines there is not a sufficient basis to proceed with the Complaint, the Title IX Coordinator may decide not to initiate an investigation and/or may also refer the Complaint to the appropriate procedural process. Such a decision should be well-reasoned and documented. Documentation of the decision will be maintained by the Title IX Coordinator. If, after due deliberation, the Title IX Coordinator decides the University cannot or should not take

disciplinary action with respect to the Respondent, the Title IX Coordinator should consider other steps to limit the effects of the alleged harassment and prevent its recurrence, and remedy its effects on the victim and the University community.

- F. **Impact of Optional Report to Law Enforcement.** In accordance with federal law, the Title IX Coordinator will not wait for the conclusion of a criminal investigation or criminal proceeding to begin the Title IX preliminary investigation. It may be necessary to delay temporarily the fact-finding portion of a Title IX preliminary investigation while the police are gathering evidence. The Title IX Coordinator will promptly resume the preliminary Title IX investigation as soon as notified by the law enforcement agency that it has completed the evidence-gathering process. The Title IX Coordinator will implement appropriate interim steps during the law enforcement agency's investigation period to provide for the safety of the Complainant and the campus community and the avoidance of retaliation.
- G. **Non-compliance.** Failure to comply with this policy can result in disciplinary action. Employees also are cautioned that non-compliance with this policy may increase their risk of personal liability. Further, an individual who fails to report as required under this policy may be determined to be ineligible for defense or protection under Section 490.010 for any associated claims, causes of action, liabilities or damages.
- H. **Retaliation.** Retaliation is any adverse action taken against a person because of that person's participation in protected activity. The University strictly prohibits retaliation against any person for making any good faith report to a Title IX Coordinator or for filing, testifying, assisting, or participating in any investigation or proceeding involving allegations of sex discrimination, sexual harassment or sexual misconduct. Any person who engages in such retaliation shall be subject to disciplinary action, up to and including expulsion or termination, in accordance with applicable procedures. Any person who believes they have been subjected to retaliation is encouraged to promptly notify the Equity Officer or Title IX Coordinator. The University will promptly investigate all claims of retaliation.  
Examples of prohibited retaliation include, but are not limited to, giving a lesser grade than the student's academic work warrants because the student filed a Complaint of sexual harassment; giving lower than justified performance appraisals because a person was a witness in an investigation of alleged sexual harassment; and threatening to spread false information about a person for filing a Complaint of sexual harassment.
- I. **False Reporting.** False reporting is making an intentional false report or accusation in relation to this policy as opposed to a report or accusation, which, even if erroneous, is made in good faith. False reporting is a serious offense subject to appropriate disciplinary action ranging up to and including expulsion or termination.
- J. **Witness Intimidation or Harassment.** No individual participating in an investigation relating to a report or Complaint that a violation of this policy has occurred should, directly or through others, take any action which may interfere with the investigation. The University prohibits attempts to or actual intimidation or harassment of any potential witness. Failure to adhere to these requirements may lead to disciplinary action, up to and including expulsion or termination.
- K. **U.S. Department of Education—Office for Civil Rights.** Inquiries concerning the application of Title IX also may be referred to the United States Department of Education's Office for Civil Rights. For further information on notice of nondiscrimination, visit <http://wdcrobcolp01.ed.gov/CFAPPS/OCR/contactus.cfm> and for the address and phone number of the U.S. Department of Education office which serves your area, or call 1-800-421-3481.

The State of Missouri regional Office for Civil Rights is located in Kansas City and is available to provide assistance.

Office for Civil Rights  
U.S. Department of Education  
One Petticoat Lane  
1010 Walnut, 3<sup>rd</sup> Floor, Suite 320  
Kansas City, MO 64106  
Telephone: 816-268-0550  
FAX: 816-268-0599  
TDD: 800-877-8339  
Email: [OCR.KansasCity@ed.gov](mailto:OCR.KansasCity@ed.gov)

# 600.020 Sex Discrimination, Sexual Harassment and Sexual Misconduct in Education/Employment Policy - for matters involving conduct alleged to have occurred prior to August 14, 2020

Executive Order 40, 4-8-14; Revised 6-19-14; Revised 9-22-14 by Executive Order 41. Revised 2-9-17 with an effective date of 3-1-17.

A. Sex Discrimination, Sexual Harassment and Sexual Misconduct in Education. The University is committed to affording equal employment and education opportunities to its employees and students, and to creating an environment free from discrimination (see Section 600.010 of the Collected Rules and Regulations). In furtherance of these commitments, both University policy and applicable state and federal law, prohibit all students, employees, volunteers and visitors at the University from engaging in discrimination on the basis of any protected characteristic, including sex, pregnancy, gender identity, and gender expression. In addition, University policy and the law prohibit sexual misconduct, sexual harassment, stalking on the basis of sex, dating/intimate partner violence, and sexual exploitation, as defined in Section 600.020.B. As used in this policy, the word "sex" is also inclusive of the term "gender." This policy applies to any phase of its employment process, any phase of its admission or financial aid programs, and all other aspects of its educational programs or activities. Additionally, this policy applies to allegations of sexual misconduct or allegations of other forms of sex discrimination, as defined in Section 600.020.B., occurring in other settings, including off-campus, if there are effects of the conduct that interfere with or limit any person's ability to participate in or benefit from the University's educational programs, activities or employment. Notices of nondiscrimination are posted online and in physical locations for the UM System and each of the campuses.

## B. Definitions

1. Sex Discrimination. Sex discrimination is conduct that is based upon an individual's sex, pregnancy, gender identity, or gender expression that adversely affects a term or condition of an individual's employment, education, living environment, or participation in a University activity. In addition, sexual harassment, sexual misconduct, sexual exploitation, stalking on the basis of sex and dating/intimate partner violence, as further defined below, are forms of sex discrimination which are prohibited under this policy.
2. Sexual Harassment. Sexual harassment is defined as:
  - a. Unwelcome sexual advances or requests for sexual activity by a person or persons in a position of power or authority to another person; or

- b. Other unwelcome verbal or physical conduct of a sexual nature or because of sex, pregnancy, gender identity, or gender expression when:
    - (1) Submission to or rejection of such conduct is used explicitly or implicitly as a condition for academic or employment decisions; or
    - (2) Such conduct creates a hostile environment by being sufficiently severe or pervasive or objectively offensive that it interferes with, limits or denies the ability to participate in or benefit from the University's educational programs, activities, or employment.
3. Sexual Misconduct. Sexual misconduct includes: 1) Nonconsensual sexual intercourse; 2) Nonconsensual sexual contact involving the sexual touching of a body part (i.e., the lips, genitals, breast, anus, groin, or buttocks of another person) or the nonconsensual sexual touching of another with one's own genitals whether directly or through the clothing; 3) Exposing one's genitals to another under circumstances in which one should reasonably know that the conduct is likely to cause affront or alarm; or 4) Sexual exploitation.
4. Stalking on the Basis of Sex. Stalking on the basis of sex is following or engaging in a course of conduct on the basis of sex with no legitimate purpose knowing or consciously disregarding a substantial and unjustifiable risk that the course of conduct makes another person reasonably concerned for their safety or would cause a reasonable person under the circumstances to be frightened, intimidated or emotionally distressed.
5. Dating/Intimate Partner Violence. Violence, threats of violence, intimidation and acts of coercion committed by a person who is or has been in a social relationship of a romantic or intimate nature with the recipient of the violent behavior.
6. Sexual Exploitation. Sexual exploitation occurs when one person takes nonconsensual or abusive sexual advantage of another person for one's own advantage or benefit or for the advantage or benefit of anyone other than the person being exploited and which behavior does not constitute any other form of sexual misconduct. Examples of sexual exploitation include, but are not limited to, the following activities done without the consent of all participants:
  - a. Invasion of sexual privacy;
  - b. Prostituting another person;
  - c. Taping or recording of sexual activity;
  - d. Going beyond the boundaries of consent to sexual activity (e.g., letting your friends hide to watch you engaging in sexual activity);
  - e. Engaging in voyeurism;
  - f. Knowingly transmitting an STI, STD, venereal disease or HIV to another person;
  - g. Inducing another to expose their genitals;
  - h. Nonconsensual distribution of intimate images;



Any person having inquiries concerning the application of Title IX should contact their respective UM System or campus Title IX Coordinator. The following individuals serve as Title IX Coordinators and are designated to handle inquiries regarding the Anti-Discrimination policies and to serve as coordinators for purposes of Title IX compliance:

University of Missouri System and University of Missouri-Columbia

Andy Hayes, J.D.

Title IX Coordinator

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University of Missouri

320 Jesse Hall

Columbia, MO 65211

Telephone: (573) 882-2824

Email: [hayesas@missouri.edu](mailto:hayesas@missouri.edu)

[equity.missouri.edu](http://equity.missouri.edu)

University of Missouri-Kansas City

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Title IX Coordinator

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[www.umkc.edu/titleix](http://www.umkc.edu/titleix)

Missouri University of Science and Technology

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Title IX Coordinator

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If the Complaint involves the University's Title IX Coordinator, Complaints may be made to the System Title IX Coordinator. If the Complaint involves the System Title IX Coordinator, reports may be made to the System President. The contact information for the System President is:

Office of the President

105 Jesse Hall

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Telephone: (573) 882-2011

Email: [president@umsystem.edu](mailto:president@umsystem.edu)

NOTE: The above-listed contact information for Title IX Coordinators may be updated as needed and without requiring the approval of the Board of Curators.

#### D. Reporting Sex Discrimination, Including Sexual Harassment and Sexual Misconduct

1. Students, Employees, Volunteers, Visitors, and Patients. Students, employees, volunteers, visitors, and patients of the University who have experienced any form of sex discrimination, sexual harassment or sexual misconduct, are encouraged to report the incident promptly to the appropriate Title IX Coordinator listed in Section 600.020.C. above. In addition, students, volunteers, visitors, and patients of the University who have witnessed such conduct are encouraged to report the incident promptly to the appropriate Title IX Coordinator. The University will investigate and appropriately resolve all such reports pursuant to one of its Equity Resolution Processes (see Sections 600.030, 600.040, 600.050, 600.060). For questions regarding confidentiality or requests that the Complaint not be pursued, see Section 600.020.E. below. In order to foster reporting and participation, the University may provide amnesty to Complainants and witnesses for minor student conduct violations ancillary to the incident.
2. Mandated Reporters. Any employee of the University, except as noted below, who becomes aware of sex discrimination as defined in this policy (including sexual harassment, sexual misconduct, stalking on the basis of sex, dating/intimate partner violence or sexual exploitation) is a Mandated Reporter, regardless of whether the recipient of the behavior is a student, employee, volunteer or visitor of the University.
3. Employees with a Legal Obligation or Privilege of Confidentiality. Employees with a legal obligation or privilege of confidentiality (including health care providers, counselors, lawyers, and their associated staff) are not considered Mandated Reporters and are not required to report when the information is learned in the course of a confidential communication. This also means that the employee seeking the exemption is employed by the University for that specific purpose and was acting in that capacity when the confidential disclosure was made. If the information is not learned in the course of confidential communication (for example, behavior is observed in class) then the employee has the same obligation as a Mandated Reporter.
4. Designated Confidential Employees. Consistent with the law and upon approval from the Office of the General Counsel, campuses may also designate non-professional counselors or advocates as confidential for purposes of this policy and, therefore, excluded from the definition of

Mandated Reporters. However, these individuals are required once per month to report to the Title IX Coordinator aggregate, non-personally identifiable information regarding incidents of sex discrimination reported to them. The aggregate data report should contain general information about individual incidents of sexual violence such as the nature, date, time, and general location of the incident. Confidentiality in this context is not the same as privilege under the law.

5. Required Reporting and Disclosure. A mandated Reporter is required to promptly report the information to the appropriate Title IX Coordinator. The Mandated Report must be made regardless of whether the person reporting the information to the Mandated Reporter requests confidentiality and regardless of how the Mandated Reporter becomes aware of the offensive behavior (personal observation, direct information from the subject of the behavior, indirect information from a third party, etc.). If the Complainant requests confidentiality or that the charges not be pursued, the Mandated Reporter should warn the Complainant that, at this stage in the process, the Mandated Reporter must report all known information to the Title IX Coordinator.
6. Content of Mandated Report to Title IX Coordinator. Mandated Reporters must report all details that they possess. This includes names of the Parties, if known, and all other information in the Mandated Reporter's possession.

#### E. Requests for Confidentiality or Not to Pursue an Investigation

1. The Title IX Coordinator or other appropriate official should inform and obtain the consent from the Complainant before beginning an investigation. If the Complainant requests confidentiality or asks that the Complaint not be pursued, the Title IX Coordinator should take all reasonable steps to investigate and respond to the Complaint consistent with the request for confidentiality or request not to pursue an investigation. If a Complainant requests confidentiality or insist that identifiable information, such as the Complainant's name, not be disclosed to the Respondent, the Title IX Coordinator should inform the Complainant that the institution's ability to respond may be limited. The Title IX Coordinator should evaluate the Complainant's request in the context of providing a safe and nondiscriminatory environment for the University community.
2. If, after due deliberation and based on the nature and severity of the Complaint, the Title IX Coordinator determines there is a sufficient basis to proceed with the Complaint, the Title IX Coordinator may initiate an investigation notwithstanding a Complainant's request that the Complaint not be pursued. Such a decision should be well-reasoned and documented. Documentation of the decision will be maintained by the Title IX Coordinator. In such cases, the Title IX Coordinator will inform the Complainant of the decision to commence an investigation. Alternatively, if after due deliberation and based on the nature and severity of the Complaint, the Title IX Coordinator determines there is not a sufficient basis to proceed with the Complaint, the Title IX Coordinator may decide not to initiate an investigation and/or may also refer the Complaint to the appropriate procedural process. Such a decision should be well-reasoned and documented. Documentation of the decision will be maintained by the Title IX Coordinator. If, after due deliberation, the Title IX Coordinator decides the University cannot or should not take

disciplinary action with respect to the Respondent, the Title IX Coordinator should consider other steps to limit the effects of the alleged harassment and prevent its recurrence, and remedy its effects on the victim and the University community.

- F. **Impact of Optional Report to Law Enforcement.** In accordance with federal law, the Title IX Coordinator will not wait for the conclusion of a criminal investigation or criminal proceeding to begin the Title IX preliminary investigation. It may be necessary to delay temporarily the fact-finding portion of a Title IX preliminary investigation while the police are gathering evidence. The Title IX Coordinator will promptly resume the preliminary Title IX investigation as soon as notified by the law enforcement agency that it has completed the evidence-gathering process. The Title IX Coordinator will implement appropriate interim steps during the law enforcement agency's investigation period to provide for the safety of the Complainant and the campus community and the avoidance of retaliation.
- G. **Non-compliance.** Failure to comply with this policy can result in disciplinary action. Employees also are cautioned that non-compliance with this policy may increase their risk of personal liability. Further, an individual who fails to report as required under this policy may be determined to be ineligible for defense or protection under Section 490.010 for any associated claims, causes of action, liabilities or damages.
- H. **Retaliation.** Retaliation is any adverse action taken against a person because of that person's participation in protected activity. The University strictly prohibits retaliation against any person for making any good faith report to a Title IX Coordinator or for filing, testifying, assisting, or participating in any investigation or proceeding involving allegations of sex discrimination, sexual harassment or sexual misconduct. Any person who engages in such retaliation shall be subject to disciplinary action, up to and including expulsion or termination, in accordance with applicable procedures. Any person who believes they have been subjected to retaliation is encouraged to promptly notify the Equity Officer or Title IX Coordinator. The University will promptly investigate all claims of retaliation.  
Examples of prohibited retaliation include, but are not limited to, giving a lesser grade than the student's academic work warrants because the student filed a Complaint of sexual harassment; giving lower than justified performance appraisals because a person was a witness in an investigation of alleged sexual harassment; and threatening to spread false information about a person for filing a Complaint of sexual harassment.
- I. **False Reporting.** False reporting is making an intentional false report or accusation in relation to this policy as opposed to a report or accusation, which, even if erroneous, is made in good faith. False reporting is a serious offense subject to appropriate disciplinary action ranging up to and including expulsion or termination.
- J. **Witness Intimidation or Harassment.** No individual participating in an investigation relating to a report or Complaint that a violation of this policy has occurred should, directly or through others, take any action which may interfere with the investigation. The University prohibits attempts to or actual intimidation or harassment of any potential witness. Failure to adhere to these requirements may lead to disciplinary action, up to and including expulsion or termination.
- K. **U.S. Department of Education—Office for Civil Rights.** Inquiries concerning the application of Title IX also may be referred to the United States Department of Education's Office for Civil Rights. For further information on notice of nondiscrimination, visit <http://wdcrocolp01.ed.gov/CFAPPS/OCR/contactus.cfm> and for the address and phone number of the U.S. Department of Education office which serves your area, or call 1-800-421-3481.

The State of Missouri regional Office for Civil Rights is located in Kansas City and is available to provide assistance.

Office for Civil Rights  
U.S. Department of Education  
One Petticoat Lane  
1010 Walnut, 3<sup>rd</sup> Floor, Suite 320  
Kansas City, MO 64106  
Telephone: 816-268-0550  
FAX: 816-268-0599  
TDD: 800-877-8339  
Email: [OCR.KansasCity@ed.gov](mailto:OCR.KansasCity@ed.gov)

# 600.020 Sexual Harassment under Title IX - for matters involving conduct alleged to have occurred on or after August 14, 2020

Executive Order 40, 4-8-14; Revised 6-19-14; Revised 9-22-14 by Executive Order 41. Revised 2-9-17 with an effective date of 3-1-17; Revised 7-28-20 with effective date of 8-14-20.

- A. Sexual Harassment in Education. The University is committed to affording equal employment and education opportunities to its employees and students, and to creating an environment free from discrimination and harassment. In furtherance of these commitments, both University policy and applicable state and federal law, prohibit all students, employees, volunteers and visitors at the University from engaging in sexual harassment in a University education program or activity against a person in the United States.

This policy applies to sexual harassment in any phase of the University's employment process, any phase of its admission or financial aid programs, and all other aspects of its education programs or activities. For purposes of this policy, "education program or activity" includes locations, events, or circumstances over which the University exercised substantial control over both the respondent and the context in which the conduct occurs, and includes any building owned or controlled by a student organization that is officially recognized by the University. This policy and CRR 600.030 do not apply to sexual harassment that happens outside the United States, even when the conduct occurs in an education program or activity of the University.

B. Definitions

1. Sexual Harassment. Sexual harassment means conduct on the basis of sex that satisfies one or more of the following:
  - a. "Quid Pro Quo" - An employee of the University conditioning the provision of an aid, benefit, or service of the University on an individual's participation in unwelcome sexual conduct;
  - b. "Hostile Environment" - Unwelcome conduct determined by a reasonable person to be so severe, pervasive, and objectively offensive that it effectively denies a person equal access to the University's education program or activity;
  - c. "Sexual assault" - Any sexual act that constitutes rape, sodomy, sexual assault with an object, fondling, incest, and statutory rape, as defined below:
    - (i) "Rape" is the carnal knowledge of a person, without the consent of the victim, including instances where the victim is incapable of giving consent because of their age or because of their temporary or permanent mental or physical incapacity. There is "carnal knowledge" if there is the

slightest penetration of the vagina or penis by the sex organ of the other person. Attempted Rape is included.

(ii) "Sodomy" is oral or anal sexual intercourse with another person, without the consent of the victim, including instances where the victim is incapable of giving consent because of their age or because of their temporary or permanent mental or physical incapacity.

(iii) "Sexual Assault with an Object" is using an object or instrument to unlawfully penetrate, however slightly, the genital or anal opening of the body of another person, without the consent of the victim, including instances where the victim is incapable of giving consent because of their age or because of their temporary or permanent mental or physical incapacity. An "object" or "instrument" is anything used by the offender other than the offender's genitalia.

(iv) "Fondling" is the touching of the private body parts of another person for the purpose of sexual gratification, without the consent of the victim, including instances where the victim is incapable of giving consent because of their age or because of their temporary or permanent mental or physical incapacity.

(v) "Incest" is sexual intercourse between persons who are related to each other within the degrees wherein marriage is prohibited by Missouri law.

(vi) "Statutory Rape" is sexual intercourse with a person who is under the statutory age of consent as defined by Missouri law.

- d. "Dating Violence" - The term "dating violence" means violence committed by a person-- (A) who is or has been in a social relationship of a romantic or intimate nature with the victim; and (B) where the existence of such a relationship shall be determined based on a consideration of the following factors: (i) The length of the relationship, (ii) The type of relationship, and (iii) The frequency of interaction between the persons involved in the relationship.
- e. "Domestic violence" - The term "domestic violence" includes felony or misdemeanor crimes of violence committed by a current or former spouse or intimate partner of the victim, by a person with whom the victim shares a child in common, by a person who is cohabitating with or has cohabitated with the victim as a spouse or intimate partner, by a person similarly situated to a spouse of the victim under the domestic or family violence laws of Missouri, or by any other person against an adult or youth victim who is protected from that person's acts under the domestic or family violence laws of Missouri.
- f. "Stalking" - The term "stalking" means engaging in a course of conduct directed at a specific person knowing or consciously disregarding a substantial and unjustifiable risk that the course of conduct ~~that~~ would cause a reasonable person to--(A) fear for their safety or the safety of others; or (B) suffer substantial emotional distress.

2. **Consent to Sexual Activity.** Consent to sexual activity is knowing and voluntary. Consent to sexual activity requires of all involved persons a conscious and voluntary agreement to engage in sexual activity. Each person engaged in the sexual activity must have met the legal age of consent. It is the responsibility of each person to ensure they have the consent of all others engaged in the sexual activity. Consent must be obtained at the time of the specific activity and can be withdrawn at any time. Consent, lack of consent, or withdrawal of consent may be communicated by words or non-verbal acts. Someone who is incapacitated cannot consent. Silence or absence of resistance does not establish consent. The existence of a dating relationship or past sexual relations between the Parties involved should never by itself be assumed to be an indicator of consent. Further, consent to one form of sexual activity does not imply consent to other forms of sexual activity. Consent to engage in sexual activity with one person does not imply consent to engage in sexual activity with another. Coercion and force, or threat of either, invalidates consent.
  3. **Incapacitated or incapacitation.** A state in which rational decision-making or the ability to consent is rendered impossible because of a person's temporary or permanent physical or mental impairment, including but not limited to physical or mental impairment resulting from drugs or alcohol, disability, sleep, unconsciousness or illness. Consent does not exist when the Respondent knew or should have known of the other individual's incapacitation. Incapacitation is determined based on the totality of the circumstances. Incapacitation is more than intoxication but intoxication can cause incapacitation. Factors to consider in determining incapacity include, but are not limited to, the following:
    - a. Lack of awareness of circumstances or surroundings (e.g., an inability to understand, either temporarily or permanently, the who, what, where, how and/or why of the circumstances; blackout state)
    - b. Inability to physically or verbally communicate coherently, particularly with regard to consent (e.g., slurred or incoherent speech)
    - c. Lack of full control over physical movements (e.g., difficulty walking or standing without stumbling or assistance)
    - d. Physical symptoms (e.g., vomiting or incontinence).
- C. **Title IX Coordinators.** Duties and responsibilities of the University's Title IX Coordinators include monitoring and oversight of overall implementation of Title IX compliance at the University, including coordination of training, education, communications and coordination with the Title IX Processes for faculty, staff, students and other members of the University community and investigation of Formal Complaints of sexual harassment, and to respond promptly to reports of sexual harassment of which the University has actual knowledge in University education programs and activities. The University may designate Deputy Coordinators as needed to assist in fulfillment of the Coordinator's duties and responsibilities. NOTE: All references to "Title IX Coordinator" throughout this policy refer to the Title IX Coordinator or the Coordinator's designee. For the purposes of this section, "actual knowledge" means notice of sexual harassment or allegations of sexual harassment to a University's Title IX Coordinator or any official of the University who has authority to institute corrective measures on behalf of the University. Imputation of knowledge based solely on vicarious liability or constructive notice is insufficient to constitute actual knowledge. This standard is not met when the

only official of the University with actual knowledge is the respondent. The mere ability or obligation to report sexual harassment or to inform a student about how to report sexual harassment, or having been trained to do so, does not qualify an individual as one who has authority to institute corrective measures on behalf of the University. The following individuals serve as Title IX Coordinators and are designated to handle inquiries regarding the Anti-Discrimination policies and to serve as coordinators for purposes of Title IX compliance:

University of Missouri System and University of Missouri-Columbia

Andy Hayes, J.D.

Title IX Coordinator

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University of Missouri

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Columbia, MO 65211

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[www.umkc.edu/titleix](http://www.umkc.edu/titleix)

Missouri University of Science and Technology

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Email: [hirtz@mst.edu](mailto:hirtz@mst.edu)

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University of Missouri-St. Louis

Jessica Swederske

Acting Title IX Coordinator

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153 JC Penney North

St. Louis, MO 63121

Telephone: 314-516-5748

Email: [swederskej@umsl.edu](mailto:swederskej@umsl.edu)

[www.umsl.edu/title-ix](http://www.umsl.edu/title-ix)

University of Missouri Health System  
Julia Ware, M.D., J.D., CPHRM, CPPS  
Title IX Coordinator  
Address:  
One Hospital Drive  
Columbia, MO 65212  
Telephone: 573-882-8187  
Email: [wareja@health.missouri.edu](mailto:wareja@health.missouri.edu)

If the report of alleged sexual harassment in a University education program or activity involves the University's Title IX Coordinator, reports may be made to the System Title IX Coordinator. If the report involves the System Title IX Coordinator, reports may be made to the System President. The contact information for the System President is:

Office of the President  
105 Jesse Hall  
Columbia, MO 65211  
Telephone: 573-882-2011  
Email: [president@umsystem.edu](mailto:president@umsystem.edu)

NOTE: The above-listed contact information for Title IX Coordinators may be updated as needed and without requiring the approval of the Board of Curators.

- D. Title IX Resolution Process. The University is committed to preventing and eliminating impermissible sexual harassment in its education programs, activities and employment. To that end, the University maintains policies regarding reporting, investigation, and resolution of complaints of sexual harassment. Specifically, please see:  
Section 600.030 – Resolution Process for Resolving Complaints of Sexual Harassment Under Title IX
- E. Designated Officials. The following are the officials designated by the University as those who have "authority to institute corrective measures." These officials are mandated reporters and shall report to the Title IX Coordinators any information that puts them on notice of sexual harassment or allegations of sexual harassment.
1. The President of the University of Missouri System;
  2. The Chancellors of each University in the University of Missouri System;
  3. The Provosts of each University in the University of Missouri System; and
  4. The Chief Human Resource Officers for each University in the University of Missouri System.

Any person having inquiries concerning the application of Title IX should contact their respective UM System or University Title IX Coordinator.

F. Reporting Sexual Harassment

1. Students, Employees, Volunteers, and Visitors. Students, employees, volunteers, and visitors of the University who have experienced any form of sexual harassment are encouraged to report the incident promptly to the appropriate Title IX Coordinator listed in Section 600.020.C. above. In addition, students, volunteers, and visitors of the University who have witnessed such conduct are encouraged to report the incident promptly to the appropriate Title IX Coordinator. The University will respond to all such reports pursuant to one of its Title IX and Equity Resolution Processes (see Sections 600.030, 600.040, 600.050).

2. Mandated Reporters. Any employee of the University, except as noted below, who becomes aware of sexual harassment as defined in this policy is a Mandated Reporter, regardless of whether the recipient of the behavior is a student, employee, volunteer or visitor of the University.
  3. Employees with a Legal Obligation or Privilege of Confidentiality. Employees with a legal obligation or privilege of confidentiality (including health care providers, counselors, lawyers, and their associated staff) are not considered Mandated Reporters and are not required to report when the information is learned in the course of a confidential communication. This also means that the employee seeking the exemption is employed by the University for that specific purpose and was acting in that capacity when the confidential disclosure was made. If the information is not learned in the course of confidential communication (for example, behavior is observed in class) then the employee has the same obligation as a Mandated Reporter.
  4. Designated Confidential Employees. Consistent with the law and upon approval from the Office of the General Counsel, Universities may also designate non-professional counselors or advocates as confidential for purposes of this policy and, therefore, excluded from the definition of Mandated Reporters.
  5. Required Reporting. A Mandated Reporter is required to promptly report the information to the appropriate Title IX Coordinator. The Mandated Report must be made regardless of whether the person reporting the information to the Mandated Reporter requests confidentiality and regardless of how the Mandated Reporter becomes aware of the offensive behavior (personal observation, direct information from the subject of the behavior, indirect information from a third party, etc.). If the Complainant requests confidentiality or that a report not be pursued, the Mandated Reporter should warn the Complainant that, at this stage in the process, the Mandated Reporter must report all known information to the Title IX Coordinator.
  6. Content of Mandated Report to Title IX Coordinator. Mandated Reporters must report all details that they possess. This includes names of the Parties, if known, and all other information in the Mandated Reporter's possession.
  7. Non-compliance. Failure to comply with this policy can result in disciplinary action. Employees also are cautioned that non-compliance with this policy may increase their risk of personal liability. Further, an individual who fails to report as required under this policy may be determined to be ineligible for defense or protection under Section 490.010 of the University's Collected Rules and Regulations for any associated claims, causes of action, liabilities or damages.
- G. Retaliation, False Reporting, and Witness Intimidation or Harassment.
1. Retaliation is any adverse action taken against a person because of that person's participation or refusal to participate in the process set forth in CRR 600.030. Any person who engages in such retaliation shall be subject to disciplinary action, up to and including expulsion or termination, in accordance with applicable procedures. Any person who believes they have been subjected to retaliation is encouraged to notify the Title IX Coordinator. The University will promptly respond to all claims of retaliation in accordance with this policy. Examples of prohibited retaliation include, but are not limited to, giving a

lesser grade than the student's academic work warrants because the student filed a report or Formal Complaint of sexual harassment; giving lower than justified performance appraisals because a person was a witness in an investigation of alleged sexual harassment; and threatening to spread false information about a person for filing a report or Formal Complaint of sexual harassment.

2. False reporting is making an intentional false report or accusation in relation to this policy as opposed to a report or accusation, which, even if erroneous, is made in good faith.
  3. The University prohibits attempted or actual intimidation or harassment of any potential Party or witness. No individual participating in an investigation relating to a report or Formal Complaint that a violation of this policy has occurred should, directly or through others, take any action which may interfere with the investigation.
  4. For situations involving alleged retaliation, false reporting, and witness intimidation or harassment, the Title IX Coordinator will refer the matter to the appropriate University process.
- H. U.S. Department of Education—Office for Civil Rights. Inquiries concerning the application of Title IX also may be referred to the United States Department of Education's Office for Civil Rights. For further information on notice of nondiscrimination and for the address and phone number of the U.S. Department of Education office which serves your area call 1-800-421-3481.  
The State of Missouri Regional Office for Civil Rights is located in Kansas City and is available to provide assistance.

Office for Civil Rights  
U.S. Department of Education  
One Petticoat Lane  
1010 Walnut, 3rd Floor, Suite 320  
Kansas City, MO 64106  
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FAX: 816-268-0559  
TDD: 800-877-8339  
Email: [OCR.KansasCity@ed.gov](mailto:OCR.KansasCity@ed.gov)

# 600.020 Sexual Harassment under Title IX - for matters involving conduct alleged to have occurred on or after August 14, 2020

Executive Order 40, 4-8-14; Revised 6-19-14; Revised 9-22-14 by Executive Order 41. Revised 2-9-17 with an effective date of 3-1-17; Revised 7-28-20 with effective date of 8-14-20.

- A. Sexual Harassment in Education. The University is committed to affording equal employment and education opportunities to its employees and students, and to creating an environment free from discrimination and harassment. In furtherance of these commitments, both University policy and applicable state and federal law, prohibit all students, employees, volunteers and visitors at the University from engaging in sexual harassment in a University education program or activity against a person in the United States.

This policy applies to sexual harassment in any phase of the University's employment process, any phase of its admission or financial aid programs, and all other aspects of its education programs or activities. For purposes of this policy, "education program or activity" includes locations, events, or circumstances over which the University exercised substantial control over both the respondent and the context in which the conduct occurs, and includes any building owned or controlled by a student organization that is officially recognized by the University. This policy and CRR 600.030 do not apply to sexual harassment that happens outside the United States, even when the conduct occurs in an education program or activity of the University.

B. Definitions

1. Sexual Harassment. Sexual harassment means conduct on the basis of sex that satisfies one or more of the following:
  - a. "Quid Pro Quo" - An employee of the University conditioning the provision of an aid, benefit, or service of the University on an individual's participation in unwelcome sexual conduct;
  - b. "Hostile Environment" - Unwelcome conduct determined by a reasonable person to be so severe, pervasive, and objectively offensive that it effectively denies a person equal access to the University's education program or activity;
  - c. "Sexual assault" - Any sexual act that constitutes rape, sodomy, sexual assault with an object, fondling, incest, and statutory rape, as defined below:
    - (i) "Rape" is the carnal knowledge of a person, without the consent of the victim, including instances where the victim is incapable of giving consent because of their age or because of their temporary or permanent mental or physical incapacity. There is "carnal knowledge" if there is the

slightest penetration of the vagina or penis by the sex organ of the other person. Attempted Rape is included.

(ii) "Sodomy" is oral or anal sexual intercourse with another person, without the consent of the victim, including instances where the victim is incapable of giving consent because of their age or because of their temporary or permanent mental or physical incapacity.

(iii) "Sexual Assault with an Object" is using an object or instrument to unlawfully penetrate, however slightly, the genital or anal opening of the body of another person, without the consent of the victim, including instances where the victim is incapable of giving consent because of their age or because of their temporary or permanent mental or physical incapacity. An "object" or "instrument" is anything used by the offender other than the offender's genitalia.

(iv) "Fondling" is the touching of the private body parts of another person for the purpose of sexual gratification, without the consent of the victim, including instances where the victim is incapable of giving consent because of their age or because of their temporary or permanent mental or physical incapacity.

(v) "Incest" is sexual intercourse between persons who are related to each other within the degrees wherein marriage is prohibited by Missouri law.

(vi) "Statutory Rape" is sexual intercourse with a person who is under the statutory age of consent as defined by Missouri law.

- d. "Dating Violence" - The term "dating violence" means violence committed by a person-- (A) who is or has been in a social relationship of a romantic or intimate nature with the victim; and (B) where the existence of such a relationship shall be determined based on a consideration of the following factors: (i) The length of the relationship, (ii) The type of relationship, and (iii) The frequency of interaction between the persons involved in the relationship.
- e. "Domestic violence" - The term "domestic violence" includes felony or misdemeanor crimes of violence committed by a current or former spouse or intimate partner of the victim, by a person with whom the victim shares a child in common, by a person who is cohabitating with or has cohabitated with the victim as a spouse or intimate partner, by a person similarly situated to a spouse of the victim under the domestic or family violence laws of Missouri, or by any other person against an adult or youth victim who is protected from that person's acts under the domestic or family violence laws of Missouri.
- f. "Stalking" - The term "stalking" means engaging in a course of conduct directed at a specific person knowing or consciously disregarding a substantial and unjustifiable risk that the course of conduct would cause a reasonable person to--(A) fear for their safety or the safety of others; or (B) suffer substantial emotional distress.

2. **Consent to Sexual Activity.** Consent to sexual activity is knowing and voluntary. Consent to sexual activity requires of all involved persons a conscious and voluntary agreement to engage in sexual activity. Each person engaged in the sexual activity must have met the legal age of consent. It is the responsibility of each person to ensure they have the consent of all others engaged in the sexual activity. Consent must be obtained at the time of the specific activity and can be withdrawn at any time. Consent, lack of consent, or withdrawal of consent may be communicated by words or non-verbal acts. Someone who is incapacitated cannot consent. Silence or absence of resistance does not establish consent. The existence of a dating relationship or past sexual relations between the Parties involved should never by itself be assumed to be an indicator of consent. Further, consent to one form of sexual activity does not imply consent to other forms of sexual activity. Consent to engage in sexual activity with one person does not imply consent to engage in sexual activity with another. Coercion and force, or threat of either, invalidates consent.
3. **Incapacitated or incapacitation.** A state in which rational decision-making or the ability to consent is rendered impossible because of a person's temporary or permanent physical or mental impairment, including but not limited to physical or mental impairment resulting from drugs or alcohol, disability, sleep, unconsciousness or illness. Consent does not exist when the Respondent knew or should have known of the other individual's incapacitation. Incapacitation is determined based on the totality of the circumstances. Incapacitation is more than intoxication but intoxication can cause incapacitation. Factors to consider in determining incapacity include, but are not limited to, the following:
  - a. Lack of awareness of circumstances or surroundings (e.g., an inability to understand, either temporarily or permanently, the who, what, where, how and/or why of the circumstances; blackout state)
  - b. Inability to physically or verbally communicate coherently, particularly with regard to consent (e.g., slurred or incoherent speech)
  - c. Lack of full control over physical movements (e.g., difficulty walking or standing without stumbling or assistance)
  - d. Physical symptoms (e.g., vomiting or incontinence).

C. **Title IX Coordinators.** Duties and responsibilities of the University's Title IX Coordinators include monitoring and oversight of overall implementation of Title IX compliance at the University, including coordination of training, education, communications and coordination with the Title IX Processes for faculty, staff, students and other members of the University community and investigation of Formal Complaints of sexual harassment, and to respond promptly to reports of sexual harassment of which the University has actual knowledge in University education programs and activities. The University may designate Deputy Coordinators as needed to assist in fulfillment of the Coordinator's duties and responsibilities. NOTE: All references to "Title IX Coordinator" throughout this policy refer to the Title IX Coordinator or the Coordinator's designee. For the purposes of this section, "actual knowledge" means notice of sexual harassment or allegations of sexual harassment to a University's Title IX Coordinator or any official of the University who has authority to institute corrective measures on behalf of the University. Imputation of knowledge based solely on vicarious liability or constructive notice is insufficient to constitute actual knowledge. This standard is not met when the

only official of the University with actual knowledge is the respondent. The mere ability or obligation to report sexual harassment or to inform a student about how to report sexual harassment, or having been trained to do so, does not qualify an individual as one who has authority to institute corrective measures on behalf of the University. The following individuals serve as Title IX Coordinators and are designated to handle inquiries regarding the Anti-Discrimination policies and to serve as coordinators for purposes of Title IX compliance:

University of Missouri System and University of Missouri-Columbia

Andy Hayes, J.D.

Title IX Coordinator

Address:

University of Missouri

320 Jesse Hall

Columbia, MO 65211

Telephone: (573) 882-2824

Email: [hayesas@missouri.edu](mailto:hayesas@missouri.edu)

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University of Missouri-Kansas City

KC Atchinson, J.D.

Title IX Coordinator

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[www.umkc.edu/titleix](http://www.umkc.edu/titleix)

Missouri University of Science and Technology

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If the report of alleged sexual harassment in a University education program or activity involves the University's Title IX Coordinator, reports may be made to the System Title IX Coordinator. If the report involves the System Title IX Coordinator, reports may be made to the System President. The contact information for the System President is:

Office of the President

105 Jesse Hall

Columbia, MO 65211

Telephone: 573-882-2011

Email: [president@umsystem.edu](mailto:president@umsystem.edu)

NOTE: The above-listed contact information for Title IX Coordinators may be updated as needed and without requiring the approval of the Board of Curators.

- D. Title IX Resolution Process. The University is committed to preventing and eliminating impermissible sexual harassment in its education programs, activities and employment. To that end, the University maintains policies regarding reporting, investigation, and resolution of complaints of sexual harassment. Specifically, please see:

Section 600.030 – Resolution Process for Resolving Complaints of Sexual Harassment Under Title IX

- E. Designated Officials. The following are the officials designated by the University as those who have "authority to institute corrective measures." These officials are mandated reporters and shall report to the Title IX Coordinators any information that puts them on notice of sexual harassment or allegations of sexual harassment.

1. The President of the University of Missouri System;
2. The Chancellors of each University in the University of Missouri System;
3. The Provosts of each University in the University of Missouri System; and
4. The Chief Human Resource Officers for each University in the University of Missouri System.

Any person having inquiries concerning the application of Title IX should contact their respective UM System or University Title IX Coordinator.

#### F. Reporting Sexual Harassment

1. Students, Employees, Volunteers, and Visitors. Students, employees, volunteers, and visitors of the University who have experienced any form of sexual harassment are encouraged to report the incident promptly to the appropriate Title IX Coordinator listed in Section 600.020.C. above. In addition, students, volunteers, and visitors of the University who have witnessed such conduct are encouraged to report the incident promptly to the appropriate Title IX Coordinator. The University will respond to all such reports pursuant to one of its Title IX and Equity Resolution Processes (see Sections 600.030, 600.040, 600.050).

2. Mandated Reporters. Any employee of the University, except as noted below, who becomes aware of sexual harassment as defined in this policy is a Mandated Reporter, regardless of whether the recipient of the behavior is a student, employee, volunteer or visitor of the University.
3. Employees with a Legal Obligation or Privilege of Confidentiality. Employees with a legal obligation or privilege of confidentiality (including health care providers, counselors, lawyers, and their associated staff) are not considered Mandated Reporters and are not required to report when the information is learned in the course of a confidential communication. This also means that the employee seeking the exemption is employed by the University for that specific purpose and was acting in that capacity when the confidential disclosure was made. If the information is not learned in the course of confidential communication (for example, behavior is observed in class) then the employee has the same obligation as a Mandated Reporter.
4. Designated Confidential Employees. Consistent with the law and upon approval from the Office of the General Counsel, Universities may also designate non-professional counselors or advocates as confidential for purposes of this policy and, therefore, excluded from the definition of Mandated Reporters.
5. Required Reporting. A Mandated Reporter is required to promptly report the information to the appropriate Title IX Coordinator. The Mandated Report must be made regardless of whether the person reporting the information to the Mandated Reporter requests confidentiality and regardless of how the Mandated Reporter becomes aware of the offensive behavior (personal observation, direct information from the subject of the behavior, indirect information from a third party, etc.). If the Complainant requests confidentiality or that a report not be pursued, the Mandated Reporter should warn the Complainant that, at this stage in the process, the Mandated Reporter must report all known information to the Title IX Coordinator.
6. Content of Mandated Report to Title IX Coordinator. Mandated Reporters must report all details that they possess. This includes names of the Parties, if known, and all other information in the Mandated Reporter's possession.
7. Non-compliance. Failure to comply with this policy can result in disciplinary action. Employees also are cautioned that non-compliance with this policy may increase their risk of personal liability. Further, an individual who fails to report as required under this policy may be determined to be ineligible for defense or protection under Section 490.010 of the University's Collected Rules and Regulations for any associated claims, causes of action, liabilities or damages.

G. Retaliation, False Reporting, and Witness Intimidation or Harassment.

1. Retaliation is any adverse action taken against a person because of that person's participation or refusal to participate in the process set forth in CRR 600.030. Any person who engages in such retaliation shall be subject to disciplinary action, up to and including expulsion or termination, in accordance with applicable procedures. Any person who believes they have been subjected to retaliation is encouraged to notify the Title IX Coordinator. The University will promptly respond to all claims of retaliation in accordance with this policy. Examples of prohibited retaliation include, but are not limited to, giving a

lesser grade than the student's academic work warrants because the student filed a report or Formal Complaint of sexual harassment; giving lower than justified performance appraisals because a person was a witness in an investigation of alleged sexual harassment; and threatening to spread false information about a person for filing a report or Formal Complaint of sexual harassment.

2. False reporting is making an intentional false report or accusation in relation to this policy as opposed to a report or accusation, which, even if erroneous, is made in good faith.
3. The University prohibits attempted or actual intimidation or harassment of any potential Party or witness. No individual participating in an investigation relating to a report or Formal Complaint that a violation of this policy has occurred should, directly or through others, take any action which may interfere with the investigation.
4. For situations involving alleged retaliation, false reporting, and witness intimidation or harassment, the Title IX Coordinator will refer the matter to the appropriate University process.

H. U.S. Department of Education—Office for Civil Rights. Inquiries concerning the application of Title IX also may be referred to the United States Department of Education's Office for Civil Rights. For further information on notice of nondiscrimination and for the address and phone number of the U.S. Department of Education office which serves your area call 1-800-421-3481.

The State of Missouri Regional Office for Civil Rights is located in Kansas City and is available to provide assistance.

Office for Civil Rights  
U.S. Department of Education  
One Petticoat Lane  
1010 Walnut, 3rd Floor, Suite 320  
Kansas City, MO 64106  
Telephone: 816-268-0550  
FAX: 816-268-0559  
TDD: 800-877-8339  
Email: [OCR.KansasCity@ed.gov](mailto:OCR.KansasCity@ed.gov)

# HEALTH AFFAIRS COMMITTEE

Robin R. Wenneker, Chair  
Julia G. Brncic  
Robert W. Fry  
Keith A. Holloway  
Jeff L. Layman  
Ronald G. Ashworth (non-curator)  
Dan P. Devers (non-curator)  
Dr. James H. Whitaker (non-curator)  
Philip Burger (non-curator)

The Health Affairs Committee (“Committee”) assists the Board of Curators in overseeing the clinical health care operations of the University and in coordinating those operations in furtherance of the University’s teaching, research, and clinical missions.

## I. Scope

The Committee provides oversight for the University’s clinical health care operations in the areas of:

- Mission, vision, and strategy;
- Governance and operational oversight;
- Quality of care and patient safety;
- Regulatory compliance;
- Financial planning and performance; and
- Coordination of the clinical, teaching, and research missions.
- Specific projects that enable meaningful collaboration among UM universities.

## II. Executive Liaison

The Executive Vice Chancellor for Health Affairs of the University of Missouri-Columbia or some other person(s) designated by the President of the University, with the concurrence of the Board Chair and the Committee Chair, shall be the executive liaison to the Committee and responsible for transmitting Committee recommendations.

## III. Responsibilities

In addition to the overall responsibilities of the Committee described above and in carrying out its responsibilities regarding clinical health care operations, the charge of the Committee shall include:

- A. Reviewing and making recommendations to the Board regarding:
  1. actions that are appropriate or necessary to assist the Board in overseeing clinical health care operations or coordinating the teaching, research, and clinical missions;
  2. significant actions related to health care which should require advance notice or approval by the Committee or Board; and
  3. other matters referred to it by the Board and University officers.
- B. Requesting, receiving, and reviewing reports and other information from University officers and advisors regarding health care operations, coordination of the teaching, research, and clinical missions, and related matters, including meeting at least quarterly and receiving regular reports from appropriate

officers of University of Missouri Health Care, the MU School of Medicine, and the MU Health Chief Compliance Officer.

- C. Additional matters customarily addressed by the health affairs committee of a governing board for an institution of higher education.

#### **IV. Committee Membership and Quorum Requirements**

The Committee's membership may include non-Curator members in addition to Curator members. Subject to approval of the Board, the Board Chair shall determine the number of Curator and non-Curator members to appoint to the Committee and shall select individuals to serve as members of the Committee; provided that, the number of non-Curator members on the Committee shall not exceed the number of Curator members on the Committee, unless the Committee temporarily has more non-Curator members than Curator members because a Curator member of the Committee has resigned from the Board or the Committee. Non-Curator members may resign their Committee membership by providing written notice to the Board Chair. Non-Curator members of the Committee serve at the pleasure of the Board and may be removed by the Board Chair at any time, subject to approval of the Board.

A quorum for the transaction of any and all business of the Committee shall exist when:

1. Both a majority of all Curator members of the Committee and a majority of all members of the Committee are participating for Committee meetings which are held in conjunction with meetings of the Board; or
2. Both all Curator members of the Committee and a majority of all members of the Committee are participating for Committee meetings which are not held in conjunction with meetings of the Board; or
3. Both a majority of all Curator members of the Committee and a majority of all members of the Committee are participating for Committee meetings which are held solely for the purpose of reviewing and overseeing compliance matters.

## EXECUTIVE VICE CHANCELLOR REPORT

Materials for this item will be posted prior to the meeting.

# ACADEMIC, STUDENT AFFAIRS, RESEARCH AND ECONOMIC DEVELOPMENT COMMITTEE

Jeff L. Layman, Chair  
Robert D. Blitz  
Todd P. Graves  
Jeanne Carins Sinquefield

The Academic, Student Affairs, Research and Economic Development Committee (“Committee”) will review and recommend policies to enhance quality and effectiveness of academic, student affairs, research and economic development and align the available resources with the University’s academic mission.

## **I. Scope**

In carrying out its responsibilities, the Committee reviews and makes recommendations to the Board of Curators on strategies and policies relating to student and faculty welfare, academic standards, educational and instructional quality, intercollegiate athletics, degree programs, economic development, research initiatives, and associated programs.

## **II. Executive Liaison**

The Associate Vice President for Academic Affairs of the University, or some other person(s) designated by the President of the University, with the concurrence of the Board Chair and the Committee Chair, shall be the executive liaison to the committee and responsible for transmitting committee recommendations.

## **III. Ex Officio Member**

The Student Representative to the Board of Curators shall be an ex officio member of the Committee.

## **IV. Responsibilities**

In addition to the overall responsibilities of the Committee described above and in carrying out its responsibilities, the charge of the Committee shall include reviewing and making recommendations to the Board on the following matters:

- A. Selection of Curators’ Distinguished Professors;
- B. Approval and review of new degree programs;
- C. Intercollegiate athletics, as specifically outlined in Section 270.060 of the Collected Rules and Regulations with a commitment to the academic success, and physical and social development of student-athletes;
- D. Changes to university-level admissions requirements, academic standards, student services, and graduation requirements;
- E. Quarterly and annual reports providing information on academic programs that have been added, deactivated, or deleted;
- F. Provide oversight over the University of Missouri System’s diversity, equity and inclusion programs;
- G. Highlight successful research and economic development efforts and partnerships; linking research and commercialization from the University with business and industry across the state and around the world.
- H. Additional matters customarily addressed by the academic, student affairs, research & economic development committee of a governing board for an institution of higher education.

**Executive Summary**  
**Intercollegiate Athletics Annual Report - UMKC**

Pursuant to Collected Rule and Regulation 270.060, Intercollegiate Athletics, the University of Missouri – Kansas City (UMKC) has provided the following athletic report for Academic Year 2022-2023. The report includes information relating to student-athlete admissions exceptions, academic progress of student-athletes, graduation rates by sport, financial performance, and other comments. More detailed information relating to the report can be found in the appendix of this section.

UMKC Athletic Director Dr. Brandon Martin will provide a brief presentation and will be available to answer questions from the Board.



Office of the Chancellor

August 18, 2023

Mun Y. Choi, Ph.D.  
President  
University of Missouri System  
321 University Hall  
Columbia, MO 65211

Dear Dr. Choi,

This letter serves as a brief summary of the 2022-23 data provided in the annual athletics report required by CCR 270.060 (E). More specifically, this letter summarizes data provided per subparts (a) through (E) of CCR 270.060 (E).

- a. Rates of admissions exceptions for Athletics as compared to campus admissions exceptions.

There were 679 student admissions exceptions made, 14 of which were made for student-athletes.

- b. Academic Progress Rates (APR) by sport, as defined by the NCAA, if applicable.

The NCAA's APR is a measurement of eligibility and retention. As determined by the NCAA all varsity teams are evaluated and need to meet the minimum multi-year threshold score of 930. The maximum score a team can achieve is 1000. The APR score is a four-year average.

The majority of Kansas City Athletics teams scored above 950. Men's basketball scored 938, because of a coaching change and the new NCAA Transfer Portal and is being monitored closely. Women's basketball and volleyball remained high at 985. Women's soccer scored 995, ranked in the top half of the conference. Women's tennis scored 991, and Women's cross country 992. Complete APR details can be found in the attached annual athletics report (spreadsheet).

- c. Graduation Success Rate (GSR) by sport, as defined by the NCAA if applicable.

There are two main metrics used to track student-athlete graduation rates, the Federal Graduation Rate (FGR) and the Graduation Success Rate (GSR). Both methods analyze the percentage of students who complete a BA/BS within a six-year time frame. The FGR counts all transfers as academic failures, however the GSR calculation allows for transfers in and out. In the GSR calculation, student-athletes who depart a school while in good academic standing (meeting the NCAA's Progress Towards Degree standards) are passed from one school's cohort to another school's cohort.

For 2022-23 Kansas City's GSR was 95%, above the NCAA average of 89%. The federal rate was 69% for student-athletes and 55% for UMKC students. The GSR for men's basketball was 100%, while women's basketball scored 100%. Four of Kansas City's teams scored 100%, and 14/14 team were at 80% and higher. Complete GSR details can be found in the attached annual athletics report (spreadsheet).

- d. Financial performances of all operations of the Department of Intercollegiate Athletics.

The department had a total expense sum of \$15,225,069 for Fiscal Year 2023. The department finished the fiscal year with a positive change in net assets of \$452,443. The department reached its revenue goals in the areas of ticket sales of \$130,966. In the area of sponsorships, the department also met its goals of \$518,472. Gift revenue reached \$744,898. More detailed information regarding the budget and financial picture can be found in the attached annual athletics report.

- e. Those items as the President may from time to time direct be added to the annual reports.

#### **Academic Highlights:**

Kansas City Athletics continues to produce strong results in the classroom. The cumulative GPA for student-athletes rose to 3.36 after the spring semester, with 12 of 14 teams achieving a GPA above 3.0. Leading the way in GPA was women's tennis at 3.65, followed closely by men's golf at 3.64, and women's soccer at 3.63. The Graduation Success Rate also continued to climb, reaching 95%.

#### **Leadership Highlights:**

Dr. Martin hired several new coaches including Men's Basketball Head Coach, Marvin Menzies. Coach Menzies has a wealth of experience, including 5 NCAA tournament appearances. He served as the head coach at UNLV, and New Mexico State before taking on the role in Kansas City. Martin also hired Dionnah Jackson-Durrett as Kansas City's new Head Women's Basketball coach. Jackson-Durrett came to Kansas City after time as a top assistant at both Texas and Mississippi State. During her playing career at Oklahoma, she was named a finalist for the Wade and Naismith National Player of the Year.

Outside of Basketball, Martin signed Head Men's Soccer Coach, Ryan Pore, to a three-year extension. Ryan has reinvigorated the winning ways of the program and secured many local recruits, drawing attention from the local fan base. Martin also renewed the contract of Head Men's Golf Coach, JW Vandeborn. Vandeborn continues to win championships for the golf program and advance his team onto the NCAA Tournament.

**Athletic Highlights:**

Competitively Kansas City Athletics performed well. Men's golf, under the leadership of JW Vandenberg, won the Summit League Championship. Our men's soccer program, led by Ryan Pore, advanced to the Summit League Championship match for the first time in several years. Men's soccer is poised this coming year to perform well on the field, playing several competitive matches against Tulsa, Creighton, and Drake. Under first year Head Coach, Dionnah Jackson-Durrett, the women's basketball program made a run in the Summit League tournament to the Quarter Finals. Additionally, women's tennis claimed second place in the regular season, with Laura Munoz-Baroja being named Scholar of the Championship by the Summit League.

**Newcomer Successes:**

- o E'Lease Stafford (WBB) - Newcomer of the Year
- o Lucas Dutartre (Golf) - Newcomer of the Year
- o RayQuawndis Mitchell (MBB) - All-Newcomer Team
- o Christian Koffi (MSOC) - All-Newcomer Team
- o Madison Page (WSOC) - All-Newcomer Team
- o Madelyn Muhr (WSOC) - All-Newcomer Team
- o Kimora Whetstone (VB) - All-Freshman Team

We are hopeful that this information is helpful to you and to the Board of Curators. Please feel free to contact me for any additional questions you may have.

Sincerely,



C. Mauli Agrawal, Ph.D.  
Chancellor

**Enclosures:**

Annual Athletic Department Report 2022-23 – Kansas City

**2022-2023 ANNUAL REPORT**  
**Department of Intercollegiate Athletics**  
**UMKC**

**Men's Sports**

	Baseball
X	Basketball
X	Cross Country
	Football
X	Golf
X	Indoor Track & Field
X	Outdoor Track & Field
	Rifle
X	Soccer
	Tennis
	Swimming & Diving
	Wrestling

**Women's Sports**

X	Basketball
X	Cross Country
	Golf
	Gymnastics
X	Indoor Track & Field
X	Outdoor Track & Field
	Rifle
X	Soccer
X	Softball
	Swimming & Diving
X	Tennis
X	Volleyball

**2022-2023 ANNUAL REPORT  
Department of Intercollegiate Athletics**

**UMKC**

**Actuals**

<b>Revenues:</b>	<b>Men's Basketball</b>	<b>Women's Basketball</b>	<b>Other Sports</b>	<b>Non-Program Specific</b>	<b>Operating Total</b>	<b>Capital Projects</b>	<b>Total</b>
Student fees (Athletic Fee)				\$ 3,539,728	\$3,539,728		\$3,539,728
Ticket Sales	\$73,595	\$25,860	\$29,115	\$2,396	\$130,966		\$130,966
Guarantees	\$370,000	\$22,000	\$8,200		\$400,200		\$400,200
Contributions	\$66,151	\$980	\$11,990	\$665,777	\$744,898		\$744,898
Direct Institutional Support - Transfers	\$1,719,472	\$1,719,709	\$3,102,466	-\$409,743	\$6,131,904		\$6,131,904
Direct Institutional Support - Tuition Waivers	\$298,802	\$210,439	\$1,990,759		\$386,207		\$2,886,207
Indirect Facilities and Administrative Support				\$429,522	\$429,522		\$429,522
NCAA/Conference Distributions incl. All Tournament Revenues				\$680,419	\$680,419		\$680,419
Broadcast, Television, Radio, and Internet Rights					\$0		\$0
Program Sales, Concessions, Novelty Sales, and Parking				\$40,981	\$40,981		\$40,981
Royalties, Advertisements, and Sponsorships				\$532,737	\$532,737		\$532,737
Endowment and Investment Income				\$12,118	\$12,118		\$12,118
Camp Revenue	\$14,681	\$2,216	\$84,118		\$101,015		\$101,015
Other Revenues	\$4,899	\$0	\$1,407	\$40,612	\$46,918		\$46,918
<b>Total Revenues</b>	<b>\$2,547,599</b>	<b>\$1,981,204</b>	<b>\$5,228,055</b>	<b>\$5,920,753</b>	<b>\$15,677,612</b>	<b>\$0</b>	<b>\$15,677,612</b>

<b>Expenses:</b>	<b>Men's Basketball</b>	<b>Women's Basketball</b>	<b>Other Sports</b>	<b>Non-Program Specific</b>	<b>Operating Total</b>	<b>Capital Projects</b>	<b>Total</b>
Athletics Student Aid - R&B, Fees, Books, ect	\$371,356	\$288,994	\$720,510	\$223,938	\$1,604,798		\$1,604,798
Athletics Student Aid - Tuition Waivers	\$306,332	\$215,742	\$2,040,928	\$323,205	\$2,886,207		\$2,886,207
Guarantees	\$19,000	\$3,500	\$7,300		\$29,800		\$29,800
Coaching Salaries, Benefits, & Bonuses Paid by the University	\$950,952	\$810,455	\$1,362,047		\$3,123,454		\$3,123,454
Support Salaries Paid by the University	\$84,819	\$67,663	\$0	\$1,718,969	\$1,871,451		\$1,871,451
Severance			\$0		\$0		\$0
Recruiting	\$69,294	\$66,948	\$70,538	\$0	\$206,779		\$206,779
Team Travel	\$480,725	\$239,121	\$739,870	\$49,074	\$1,508,789		\$1,508,789
Equipment, Uniforms, and Supplies	\$86,537	\$52,946	\$208,025	\$338,587	\$686,095		\$686,095
Game Expenses	\$94,300	\$65,945	\$73,871	\$122,606	\$356,722		\$356,722
Fundraising, Marketing, and Promotion	\$8,617	\$3,139	\$1,266	\$199,757	\$212,778		\$212,778
Direct Facilities, Maintenance, and Rental	\$14,312	\$4,111	\$40,730	\$76,575	\$135,728		\$135,728
Spirit Groups				\$73,182	\$73,182		\$73,182
Indirect Facilities and Administrative Support				\$429,522	\$429,522		\$429,522
Medical Expense and Medical Insurance	\$3,712	\$0	\$0	\$669,826	\$673,537		\$673,537
Membership and Dues	\$2,641	\$0	\$3,266	\$49,334	\$55,241		\$55,241
Camp Expenses	\$5,622	\$3,386	\$28,744		\$37,753		\$37,753
Student Athlete Meals - Non Travel	\$99,914	\$23,042	\$49,726	\$0	\$172,681		\$172,681
Other Operating Expenses	\$226,477	\$70,353	\$103,455	\$760,266	\$1,160,552		\$1,160,552
<b>Total Expenses</b>	<b>\$2,824,611</b>	<b>\$1,915,345</b>	<b>\$5,450,272</b>	<b>\$5,034,840</b>	<b>\$15,225,069</b>	<b>\$0</b>	<b>\$15,225,069</b>
<b>Excess (Deficiency) of Revenues over Expenses)</b>	<b>-\$277,012</b>	<b>\$65,859</b>	<b>-\$222,217</b>	<b>\$885,913</b>	<b>\$452,543</b>	<b>\$0</b>	<b>\$452,543</b>

**2022-2023 ANNUAL REPORT**  
**Department of Intercollegiate Athletics**  
**UMKC**

**Athletic Participation by Student Athletes**

<b>Men's Sports</b>	<b>Scholarship</b>	<b>Walk-On</b>	<b>Total</b>
Basketball	13	5	18
Golf	10	1	11
Soccer	30	3	33
Track & Field/Cross Country	31	2	33
Tennis	0	0	0
Subtotal	84	11	95

<b>Women's Sports</b>	<b>Scholarship</b>	<b>Walk-On</b>	<b>Total</b>
Basketball	15	0	15
Golf	0	0	0
Soccer	29	1	30
Softball	23	2	25
Tennis	8	2	10
Track & Field/Cross Country	27	2	29
Volleyball	13	4	17
Subtotal	115	11	126

<b>Grand Total</b>	199	22	221
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*NOTE: Scholarship student-athletes include all students receiving athletic aid awards, including post-eligible and medical awards.*

**2022-2023 ANNUAL REPORT**  
**Department of Intercollegiate Athletics**

**UMKC**

**Academic Progress Rate by Sport**

<b>Men's Sports (indicate if not applicable--n/a)</b>	<b>APR Score</b>
Basketball	938
Cross Country	954
Golf	963
Indoor Track & Field	Suspended
Outdoor Track & Field	Suspended
Soccer	977
Tennis	Eliminated

<b>Women's Sports (indicate if not applicable--n/a)</b>	
Basketball	985
Cross Country	992
Golf	Eliminated
Indoor Track & Field	Suspended
Outdoor Track & Field	Suspended
Soccer	995
Softball	977
Tennis	991
Volleyball	985

**2022-2023 ANNUAL REPORT**  
**Department of Intercollegiate Athletics**  
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**Grade Point Averages by Semester**

	2019-20		2020-21		2021-22		2022-23		4-Year Average	4-Year Change
	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring		
<b>Men's Sports</b>										
Basketball	2.780	2.260	3.200	3.120	3.05	3.04	3.01	2.69	2.894	0.330
Golf	3.360	2.860	3.590	3.650	3.54	3.66	3.58	3.62	3.483	0.490
Soccer	3.440	3.440	3.360	3.340	3.09	3.10	3.45	3.44	3.333	0.005
Tennis	3.280	3.320	N/A	N/A	N/A	N/A	N/A	N/A	3.300	
Cross Country	3.440	3.350	3.530	3.480	2.71	3.14	3.27	3.25	3.271	-0.135
Indoor Track	3.010	3.210	3.190	3.060	2.82	3.23	3.17	3.13	3.103	0.040
Outdoor Track	3.010	3.210	3.190	3.060	2.82	3.23	3.17	3.13	3.103	0.040
Average	3.189	3.093	3.343	3.285	3.005	3.233	3.275	3.210	3.212	0.128

	2019-20		2020-21		2021-22		2022-23		4-Year Average	4-Year Change
	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring		
<b>Women's Sports</b>										
Basketball	3.270	3.360	3.210	3.290	3.240	3.280	3.220	2.450	3.165	-0.480
Golf	3.670	3.700	N/A	N/A	N/A	N/A	N/A	N/A	3.685	
Soccer	3.630	3.620	3.640	3.650	3.490	3.640	3.620	3.680	3.621	0.025
Softball	3.510	3.380	3.370	3.300	3.190	3.090	3.330	3.440	3.326	-0.060
Tennis	3.530	3.590	3.590	3.680	3.560	3.770	3.790	3.620	3.641	0.145
Cross Country	3.580	3.610	3.880	3.470	3.160	3.390	3.440	3.510	3.505	-0.120
Indoor Track	3.210	3.210	3.420	3.170	3.190	3.390	3.250	3.340	3.273	0.085
Outdoor Track	3.210	3.210	3.240	3.170	3.190	3.390	3.250	3.340	3.250	0.085
Volleyball	3.460	3.540	3.410	3.470	3.410	3.690	3.620	3.600	3.525	0.110
Average	3.452	3.469	3.470	3.400	3.304	3.455	3.440	3.373	3.443	-0.026

<b>Overall Average</b>	3.337	3.304	3.416	3.351	3.176	3.360	3.369	3.303	3.342	0.040
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*NOTE: Scholarship student-athletes include all students receiving athletic aid awards, including post-eligible and medical awards.*

**2022-2023 ANNUAL REPORT**  
**Department of Intercollegiate Athletics**  
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**STUDENT-ATHLETE GRADUATION RATES (Freshman cohort)**

<b>Six-year average (federal IPEDS rate)</b>	<b>All Students</b>	<b>Student Athletes</b>
2013-2016 cohort	55%	69%
2012-15 cohort	50%	66%
2011-14 cohort	51%	69%
2010-13 cohort	47%	66%
2009-12 cohort	48%	62%

<b>Six-year average (graduation success rate)</b>	<b>All Students</b>	<b>Student Athletes</b>
2013-2016 cohort		95%
2012-15 cohort		94%
2011-14 cohort		95%
2010-13 cohort		95%
2009-12 cohort		92%

**2022-2023 ANNUAL REPORT**  
**Department of Intercollegiate Athletics**

**UMKC**

**Admission Exceptions**

	<b>Summer 2023</b>	<b>Fall 2022</b>	<b>Spring 2023</b>	Total
Student-Athlete Admission Exceptions ( <i># of individual exceptions</i> )	5	7	2	14
All Student Admission Exceptions ( <i># of individual exceptions</i> )	15	620	44	679
Percent of Admissions Exceptions who are Student-Athletes	<b>33.33%</b>	<b>1.13%</b>	<b>4.55%</b>	<b>2.06%</b>



UNIVERSITY OF MISSOURI  
**KANSAS**  
**CITY**



# CURATORS PRESENTATION

SEPTEMBER 7, 2023

## 1. Welcome: Vice Chancellor & Director of Athletics, Dr. Brandon Martin

## 2. Kansas City Athletics 2022-2023:

- a. Full Sport Sponsorship
  - i. 14 Sports
  - ii. Men's and Women's Indoor/Outdoor Track & Field
  - iii. Increased Number of Student-Athletes
    - 221 Overall
    - 95 Men
    - 126 Women





# CURATORS PRESENTATION

SEPTEMBER 7, 2023

## 3. Academic Highlights:

- a. Overall GPA: 3.34
- b. Women's Overall GPA: 3.44
- c. Men's Overall GPA: 3.21
- d. Graduate Success Rate (GSR): 95%
- e. Academic Program Rate (APR):  
Four Teams above 980





## CURATORS PRESENTATION

SEPTEMBER 7, 2023

### 4. Finance Highlights:

- a. FY23 Change in Net Assets \$452,543
- b. FY23 Total Expenses \$15,225,069
- c. Revenue Goals Achieved
  - Sponsorships \$532,737
  - Gifts \$744,898
  - NCAA/Conference Distribution \$680,419





## CURATORS PRESENTATION

SEPTEMBER 7, 2023

### 5. Athletic Highlights:

- a. Men's Golf wins Summit League Championship
- b. Marvin Menzies hired as Head Men's Basketball Coach
- c. Dionnah Durrett-Jackson hired as Head Women's Basketball Coach
- d. Ryan Pore, Head Men's Soccer Coach, Contract Extended





# CURATORS PRESENTATION

SEPTEMBER 7, 2023

## 6. Elevation: Everything Counts

- a. Exploration of Facility/Arena
- b. Strategic Planning
- c. Enhancements to Swinney Center
- d. Focus on Comprehensive Excellence





**QUESTIONS?**

## Executive Summary

### **Naming Approval Request for the Johnny Morris Institute of Fisheries, Wetlands and Aquatic Systems University of Missouri - Columbia**

The College of Agriculture, Food and Natural Resources (CAFNR) will develop and operate an Institute of Fisheries, Wetlands and Aquatic Systems at the University of Missouri. It will serve as a national center of research, knowledge and best management practices impacting fisheries, wildlife, wetlands and aquatic systems. Our faculty will train the next generation of aquatic systems conservationists, environmental scientists and researchers. Moreover, the Institute will nurture and embrace the ability of everyone to excel, while maintaining a respectful and inclusive environment.

The Institute was borne out of a strong partnership with the Missouri Department of Conservation (MDC) and Missouri Conservation Heritage Foundation (MCHF) and will advance the wellness of Missouri's watersheds. Additional benefits of the new center are listed in the supporting documentation.

**In recognition of John L. Morris' generosity and unparalleled contributions to conservation, CAFNR requests Board of Curators approval that the new institute be named the "Johnny Morris Institute of Fisheries, Wetlands and Aquatic Systems," for the life of the institute.**

#### **ABOUT JOHNNY MORRIS**

Morris is an entrepreneur and conservationist on the grandest scale. In 1972, Morris founded Bass Pro Shops by selling fishing tackle out of the back of his father's store. Today, Bass Pro Shops is North America's premiere outdoor and conservation company. Headquartered in Springfield, Missouri, Bass Pro Shops employs 40,000 people across 200 stores, greets 200 million visitors per year, and surpasses \$4B in annual sales across their retail stores, resorts and outdoor destinations, and outdoor equipment manufacturing.

Morris is one of the country's leaders in conservation, working to ensure natural habitats, wildlife and the outdoors remain healthy and abundant for future generations to protect and enjoy. Applying the same entrepreneurial skills that allowed his business to thrive, Morris has invested time and resources to conservation organizations and initiatives. Morris is committed to conserving wildlife and habitat and connecting new audiences to the outdoors.

Morris has received many awards for his leadership, entrepreneurship, and commitment to conservation. Naming the Institute in his honor is a fitting way to not only recognize his achievements but also his importance, bringing national recognition to the Institute bearing his name. MCHF has also requested this recognition for Morris' philanthropic commitment to the Institute as well as his lasting partnership with the MDC and the Foundation.



**TO:** Jackie Lewis, Vice Chancellor, University Advancement

**FROM:** Christopher Daubert, Vice Chancellor & Dean, College of Agriculture, Food, and Natural Resources *CRD*

**DATE:** August 3, 2023

**RE:** Naming Approval Request for the Johnny Morris Institute of Fisheries, Wetlands and Aquatic Systems

**Overarching Goal:**

The College of Agriculture, Food and Natural Resources will develop and operate an Institute of Fisheries, Wetlands and Aquatic Systems (“Institute”) at the University of Missouri. It will serve as a national center of research, knowledge and best management practices impacting fisheries, wildlife, wetlands and aquatic systems. Our faculty will train the next generation of aquatic systems conservationists, environmental scientists and researchers. Moreover, the Institute will nurture and embrace the ability of everyone to excel, while maintaining a respectful and inclusive environment.

In recognition of John L. Morris’ generosity and unparalleled contributions to conservation, I respectfully request approval to name the **Johnny Morris Institute of Fisheries, Wetlands and Aquatic Systems**.

**Benefits to the Program:**

The Institute was borne out of a strong partnership with the Missouri Department of Conservation (MDC) and Missouri Conservation Heritage Foundation (MCHF). It will advance the wellness of our watersheds by:

- Bringing together diverse partners to collectively define priority challenges.
- Conducting key, cutting-edge, interdisciplinary research needed to anticipate, inform, or resolve priority issues and maintain healthy fisheries, wetlands and aquatic systems in Missouri, regionally, nationally, and internationally.
- Ensuring conservation workforce development through internships, cooperative education efforts and graduate assistance programs that guarantee the next generation of researchers, conservationists, managers, and industry leaders are trained in a setting that provides real-world learning opportunities and cross-disciplinary training.
- Developing and supporting public policy focusing on integrated conservation and economics of water, fish and wildlife resources, agriculture, and associated outdoor recreation.
- Communicating knowledge gained through an array of platforms, including conferences, scientific and popular publications to convey information affecting the lives and decisions of every citizen.
- Building a pipeline of talent to help fill recurring vacancies at the Missouri Department of Conservation, as well as conservation agencies/organizations across the country.

The Institute and its personnel will reside in the MU School of Natural Resources (SNR) and amplify our existing programs and faculty in fisheries and wildlife sciences. These new faculty scientists will also enhance our ability to seek federal research funding. Several rooms have been identified for the Institute's use within the Anheuser-Busch Natural Resources Building, which houses SNR.

**Specifics of Agreement:**

MCHF is a nonprofit, charitable organization that helps meet the financial needs placed on natural resource conservation and conservation related outdoor recreation in Missouri. It is separate from MDC but directly supports the agency's mission of protecting the state's forest, fish and wildlife resources. MCHF has pledged a \$1.72M cash gift to fund the Institute in its first five years. This will provide support to hire the Institute's director and two additional faculty in fisheries, wildlife, wetlands and/or aquatic systems.

As its own nonprofit, MCHF is actively fundraising to support the Institute at the highest level. MCHF and its partners are committed to establishing a \$30M endowment to support the Institute. This endowment will be held by MCHF as reviewed and approved by the University of Missouri Office of General Counsel. To date, MCHF has total philanthropic commitments of \$8,927,100 including a \$1.5M gift from Morris. As the endowment grows, the support provided to the Institute will increase, as well.

**Period of Naming:**

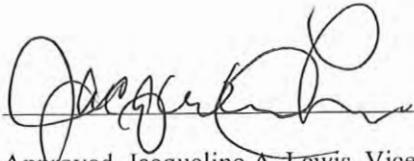
The **Johnny Morris Institute of Fisheries, Wetlands and Aquatic Systems** will be named for the life of the Institute.

**Additional Factors:**

Morris is an entrepreneur and conservationist on the grandest scale. In 1972, Morris founded Bass Pro Shops by selling fishing tackle out of the back of his father's store. Today, Bass Pro Shops is North America's premiere outdoor and conservation company. Headquartered in Springfield, Missouri, Bass Pro Shops employs 40,000 people across 200 stores, greets 200 million visitors per year, and surpasses \$4B in annual sales across their retail stores, resorts and outdoor destinations, and outdoor equipment manufacturing.

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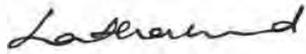
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Approved, Jacqueline A. Lewis, Vice Chancellor, University Advancement

8/3/23

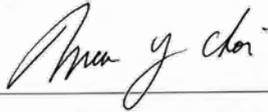
Date



Approved, Dr. Latha Ramchand, Executive Vice Chancellor of Academic Affairs and Provost

8/8/2023

Date



Approved, Dr. Mun Y. Choi, President of the University of Missouri

8/8/2023

Date

**Executive Summary**  
**New Degree Program: BS in Biomedical Engineering**  
**Missouri University of Science and Technology**

The proposed biomedical engineering (BME) Bachelor of Science (BS) program at Missouri S&T will provide a transformative education for engineering students interested in health and life-sciences fields, including biomanufacturing, biomaterials, and medical sciences and engineering. This new degree program will require 125 or 128 credit hours depending on the student's selected track. The creation of the BME degree fills a crucial gap in our existing engineering portfolio and aligns with campus, college, and departmental goals of providing educational opportunities involving medical and biological engineering and science. The program will differentiate itself from other BME programs in the UM System through its focus on biomanufacturing and biomaterials, and its integration with other engineering disciplines at Missouri S&T. This undergraduate program will also prepare students to pursue advanced degrees in engineering, science, and medicine.

The demand for BME professionals in the state of Missouri is projected to increase by 18% in the next 10 years, 1.87 times greater than the national average, according to a Lightcast™ report. Employers have expressed interest in such a program at Missouri S&T, which will provide a skilled workforce to meet increasing demand in the biomedical industry. Letters of support from employers, including Phelps Health, Pfizer, Emerson, and others, are included in the appendices.

The program will leverage existing interdisciplinary resources to minimize program start-up costs. Revenue is expected to be primarily generated from tuition and fees for new students, but the expansion of the S&T educational portfolio into BME is expected to provide new opportunities for federal support, particularly from the National Institutes of Health and related agencies. A comprehensive marketing strategy will be implemented to recruit students from Missouri and the greater region, targeting those interested in life science and engineering fields. This strategy will enhance Missouri S&T's brand recognition and promote STEM careers.

The program's evaluation and assessment will be conducted annually by a steering committee comprised of faculty members from participating departments and an external advisory panel. The committee will generate a program evaluation report that covers undergraduate enrollment numbers, student credit hours taught, recruiting and retention efforts, and ABET data collection activities. This information will be used to allocate future resources for the departments and colleges involved, ensuring the program's ongoing economic health.

In conclusion, the proposed BME BS program at Missouri S&T addresses the growing demand for skilled professionals in this field, aligns with the strategic goals of the campus, and offers a strong case for its establishment as an essential component of the university's academic offerings.

No. 2

Recommended Action – BS in Biomedical Engineering

Missouri University of Science and Technology

It was recommended by the University of Missouri System Office of Academic Affairs, endorsed by President of the University of Missouri Mun Y. Choi, recommended by the Academic, Student Affairs and Research & Economic Development Committee, moved by Curator \_\_\_\_\_, seconded by Curator \_\_\_\_\_ that the following action be approved:

that the Missouri University of Science and Technology be authorized to submit the attached proposal for a BS in Biomedical Engineering to the Coordinating Board for Higher Education for approval.

Roll call vote of the Committee: YES NO

Curator Blitz

Curator Graves

Curator Layman

Curator Siquefield

The motion \_\_\_\_\_.

Roll call vote of Board: YES NO

Curator Blitz

Curator Brncic

Curator Fry

Curator Graves

Curator Holloway

Curator Layman

Curator Siquefield

Curator Wenneker

Curator Williams

The motion \_\_\_\_\_.

New Degree Program Proposal:

**Bachelor of Science in  
Biomedical Engineering**

Missouri University of Science and Technology  
*September 2023 Board of Curators Meeting*

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## **Executive Summary**

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The demand for BME professionals in the state of Missouri is projected to increase by 18% in the next 10 years, 1.87 times greater than the national average, according to a Lightcast™ report. Employers have expressed interest in such a program at Missouri S&T, which will provide a skilled workforce to meet increasing demand in the biomedical industry. Letters of support from employers, including Phelps Health, Pfizer, Emerson, and others, are included in the appendices.

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The program's evaluation and assessment will be conducted annually by a steering committee comprised of faculty members from participating departments and an external advisory panel. The committee will generate a program evaluation report that covers undergraduate enrollment numbers, student credit hours taught, recruiting and retention efforts, and ABET data collection activities. This information will be used to allocate future resources for the departments and colleges involved, ensuring the program's ongoing economic health.

In conclusion, the proposed BME BS program at Missouri S&T addresses the growing demand for skilled professionals in this field, aligns with the strategic goals of the campus, and offers a strong case for its establishment as an essential component of the university's academic offerings.

# 1. Introduction

The proposed biomedical engineering (BME) BS program at Missouri S&T will address the growing demand for skilled professionals in the fields of biomanufacturing, biomaterials, healthcare, and related industries and professions. This interdisciplinary program will equip students with the knowledge and skills required to excel in various career paths, including biotechnology, medical device development, pharmaceuticals, and healthcare management. The program is being proposed at this time due to the growing interest in the life sciences and engineering fields among prospective students at Missouri S&T, as evidenced by the current popularity of related minors and emphasis areas and by national trends in engineering education.

## Academic Components and Career Paths

The BME BS program integrates a strong foundation in engineering principles with a focus on biomanufacturing, biomolecular processes, and materials science. Students will benefit from existing courses in areas such as chemical engineering, electrical engineering, and materials science and engineering while also taking new courses designed specifically for this program. Graduates of the program will be well-prepared for a variety of career paths, including:

- Biomedical device design and development, including working with medical devices, prosthetics, and implants;
- Biotechnology and pharmaceutical research and manufacturing, focusing on drug and biologics discovery, production, development, and translation;
- Tissue engineering and regenerative medicine, working on cutting-edge solutions for organ repair and replacement;
- Healthcare management and consulting, applying engineering principles to improve healthcare systems and patient outcomes;
- Advanced degrees (PhD, MD, DDS, etc.) in the medical sciences and engineering.

## Evolution of the Program Concept

The concept for the BME BS program at Missouri S&T has evolved over time, with the initial establishment of a Biochemical Engineering emphasis area within the Chemical Engineering degree more than 30 years ago, supported by the creation of the Department of Biological Sciences in 1983. For the past two decades, the Missouri S&T Department of Materials Science and Engineering has hosted an interdisciplinary minor program in BME, a program that has been completed by 67 students over the past five years. The Center for Biomedical Research (CBR) on our campus includes 49 faculty from across campus, who presently form the foundation for biomedical research and education at Missouri S&T.

BME is one of the fastest-growing engineering disciplines in the country and is one of the only ABET-accredited 4-year engineering degree program missing from S&T's educational

portfolio. Given trends in student interests, national needs, and local demand, this is the ideal time to begin a BME undergraduate degree program at S&T.

### Integration of Existing Courses

The proposed program will leverage existing engineering (105 credit hours of required and track electives) and life science courses (38 credit hours of required and track electives) in related areas to provide students with a comprehensive educational experience. These existing courses will be integrated into the program's curriculum (comprising 85% of engineering courses and 100% of life sciences courses in the curriculum) alongside three new courses (10 credit hours) designed explicitly for the BME BS program. This approach ensures that students receive a well-rounded biomedical engineering education while minimizing the need for additional resources to create the new program.

### Program Coordinator

The individual responsible for the success of the proposed BME BS program is Dr. Hu Yang, Chair of the Doshi Department of Chemical and Biochemical Engineering (ChBE). He can be reached at [huyang@mst.edu](mailto:huyang@mst.edu) or (573) 341-4854. Dr. Yang will oversee the development and implementation of the program, ensuring its alignment with the university's strategic goals and the needs of students and employers. Dr. Christi Luks, Associate Chair for Academic Affairs in the ChBE Department, will serve as program coordinator. She can be reached at [luksc@mst.edu](mailto:luksc@mst.edu) or (573) 341-7641. As the program coordinator, she will be responsible for curriculum development and monitoring and evaluating the program's overall performance to ensure continuous improvement for ABET accreditation. The program will be evaluated annually to determine if additional staffing is necessary to support its growth and success.

## 2. University Mission & Program Analysis

### 2.A. Alignment with University Mission & Goals

**Alignment with campus goals.** The proposed BME BS program at Missouri S&T is in perfect alignment with the university's mission and goals, as well as with specific departmental and college priorities. Missouri S&T's mission is to integrate education, research, and application to create and convey knowledge that serves our state and helps solve the world's great technological challenges. This mission resonates with the key concept of the proposed program, which aims to develop a next-generation workforce that can tackle important societal problems associated with healthcare and medicine.

The proposed BME program aligns with a bold new vision for Missouri S&T that coalesces and greatly expands our bioengineering and bioscience research and education initiatives. We call this our "Bio-X" vision, where the X represents the many research directions we intend to coalesce and grow. A major focus of Bio-X is to position Missouri S&T as a partner in education and research in areas that will complement ongoing medical education and research efforts in the UM system, such as the NextGen precision medicine initiative at MU.

Another goal is for more of our students to feed into the existing medical, dental, and pharmacological schools at MU and UMKC. The creation of a BME BS degree is an essential component of the Bio-X vision.

**Alignment with college goals.** The mission of the College of Engineering and Computing (CEC) is to (i) Provide our students with a transformative education that prepares and inspires them to shape the future, and to (ii) Lead the way in improving our world and in solving grand societal challenges through research and innovation. The overall goal and objectives of the BME program align well with and provide strong support to the CEC mission.

The CEC at Missouri S&T provides over 4000 undergraduate students with a wide variety of engineering degree offerings. The addition of the BME degree will fill a significant hole in our educational portfolio. The BME degree will allow us to enhance the education of our existing students, connect to new students who seek these opportunities, and to develop a workforce in this important and growing area. This new program will equip graduates with the skills and knowledge necessary to excel in a wide range of biomedical engineering career paths and contribute to technological advancements in the field.

The proposed BME degree program is built on a strong foundation of education in mathematics, sciences, and interdisciplinary engineering. Within CEC, the BME undergraduate program will be supported by faculty and coursework in Chemical and Biochemical Engineering, Materials Science and Engineering, Electrical Engineering, Mechanical Engineering, and Computer Science, and this will be supplemented by faculty in the Departments of Biological Sciences and Chemistry in the College of Arts, Sciences, and Education.

**Alignment with departmental goals.** The Doshi Department of Chemical and Biochemical Engineering has long had the goal of growing the Biochemical Engineering emphasis area into an independent degree program. As our department strives to achieve nationally-recognized excellence in research and education, a series of strategic alignments have been identified to bolster our efforts. First and foremost, fostering closer relationships with the pharmaceutical industry will enable collaborative research endeavors, knowledge exchange, and potential funding sources. Concurrently, we will actively pursue opportunities from the National Institutes of Health (NIH) and various foundations to support undergraduate education through grants, scholarships, and internships. In our quest to promote diversity, our efforts will include recruiting female and underrepresented students who want to pursue careers in healthcare-related engineering disciplines. The creation of the BME BS program supports and aligns perfectly with the department's goals, contributing to the fulfillment of broader institutional objectives and priorities.

## **2.B. Duplication & Collaboration within Campus, Across System**

Within the Missouri S&T engineering portfolio, we currently offer a minor in BME and an emphasis area in biochemical engineering. However, we lack an independent undergraduate

engineering degree in any bio-related area. Across the UM system, UM-Columbia and UMKC both offer BS degree programs in BME. The BME undergraduate degree program at UM-Columbia offers four tracks: biomaterials, biomechanics, biomedical imaging and instrumentation, and bioinformatics. The BME BS program at UMKC does not offer tracks, but students have opportunities to study biomaterials, biomechanics, and bio-electromagnetics.

Although there are similar elements among the UMKC, UM-Columbia and our proposed degree, we believe our strength in the biomanufacturing area (one of our two tracks) provides some level of distinction among the three degrees. The biomaterials tracks do have overlap but are natural areas of emphasis for Missouri S&T because we already have BS, MS, and PhD degrees in materials science and engineering areas, as well as a minor in BME housed in materials science and engineering. The other campuses in the UM system have no existing degrees in materials science/engineering.

With the goal of increasing the number of medical professionals in our state, we have been working with the UM system to develop pathways for our top engineering students to attend the medical schools at UM and UMKC. These initiatives are designed not only to facilitate a seamless transition for our students but also to foster interdisciplinary learning and collaboration across different campuses. Our new BME program is a key part of these efforts. Through this program, we will better equip our students with skills that are increasingly valued in the medical, dental, and pharmacy fields. One of our aims with this degree is to cultivate a pool of exceptional candidates for these advanced professional degrees.

Our BME program has the potential to be mutually beneficial for S&T, MU, and UMKC, as we plan to increase the pool of prospective students interested in professional degrees available on the other campuses. This pool of students would bring a unique blend of expertise and perspectives that would have value for MU and UMKC's established medical, dental, and pharmacy schools. We also believe that these career pathways can benefit by having more students with engineering backgrounds who can apply their expertise in healthcare contexts.

The initiation of the BME program has been discussed with college leaders at MU and UMKC. Potential collaborative opportunities have also been explored among several faculty members on the different campuses. In addition to these individual engagements, we have fostered broader institutional collaborations in the UM system in this area. The most recent instance includes our partnership with the University of Missouri–St. Louis (UMSL) on the National Science Foundation proposal titled “NSF Engines: Type-2: Reshoring API Manufacture through Innovation.” In this joint venture, Missouri S&T has been chiefly focused on advancing innovation and workforce development in downstream pharmaceutical processes and continuous manufacturing. The BME degree and growth in related research areas are pivotal in encouraging the reshoring of pharmaceutical manufacturing.

No existing programs at Missouri S&T will be combined, placed on inactive status, or deleted as a result of implementing this program.

## **3. Business-Related Criteria & Justification**

### **3.A. Market Analysis**

#### *3.A.1. Rationale & Workforce Demand for the Program*

Global Market Insight reported that the US biotechnology market was valued at approximately \$417B in 2018 and was projected to grow to over \$950B by 2027, exhibiting a compound annual growth rate (CAGR) of more than 9.4%. We conducted a comprehensive labor market analysis using Lightcast™. This analysis used the occupation code 17-2031 Bioengineers and Biomedical Engineers and set the time frame of 2022-2032.

The report highlights the need to develop a biomedical engineering workforce at all education levels across the nation, the state of Missouri, and the St. Louis metropolitan area. For instance, Occupation Analysis Reports indicate that 18,963 bioengineer and biomedical engineer job openings were posted nationwide in 2022, with a projected growth of 15% over the next decade. The Lightcast™ report shows there were 109 job postings for biomedical engineers in 2022 and the median wage was \$78,428 in the state. Although the job posting demand in the state is currently lower than the national average, the projected growth is 18% between 2022 and 2032, which is approximately 1.87 times greater than the national average.

It is important to recognize that while the most recent number of Missouri completions (144 in 2021) surpasses the number of Missouri job postings (109), we believe that this does not imply an oversaturation of the market or a lack of job opportunities for BME graduates. A large fraction of BME graduates choose to further their education by enrolling in graduate studies or pursuing professional degrees in health fields, rather than entering the workforce directly. This decision can be motivated by a desire for deeper specialization, a drive for research and innovation, or ambitions to occupy high-level positions in academia or industry in the future. Hence, these graduates represent a significant investment in the future of the field and for healthcare fields in Missouri. We conducted an anonymous survey among students currently enrolled at Missouri S&T. According to the survey, students pursuing a BS in chemical engineering with a biochemical engineering emphasis (BioChE) show a very high interest in getting an advanced degree. Twelve out of 13 respondents expressed interest in a biomedical engineering or bioengineering PhD.

BME is also a broad, versatile, and in-demand field, meaning many graduates will be competitive for job opportunities nationally and may see those opportunities based on their particular sectors of interest. Moreover, BME graduates are equipped with a diverse set of skills that are applicable in various related fields, which may not be fully captured in the market analysis. Some graduates might opt for jobs that are not strictly defined as BME but still make use of their skillset. This could include roles in related engineering fields, medical technology, healthcare consulting, and more.

Given the projected growth numbers for job openings in this area in Missouri and elsewhere, it appears that there is still substantial market demand for biomedical engineers.

This program will meet Missouri's academic and economic needs by producing graduates who can contribute to the growing biotechnology sector. Employers, community partners and stakeholders have provided strong support for the establishment of this new program, as evidenced by their letters of support (**Appendix 1**). Quotes from their letters are provided below.

Bipin Doshi, Trustee Missouri S&T, Board Member KI Foundation, Past Chair Beacon Health System Board, South Bend, Indiana states *“This invitation (from the UM system) has come at the most appropriate time. A growing demand for Biochemists and Biochemical Engineers requires us to develop an industry appropriate curriculum to educate and train engineers who are equally proficient in chemical and biochemical fields.”* He further stresses that *“There is a need nationwide for these curriculums and MST is well positioned to leverage its various programs in a well-coordinated program within the Chemical and Biochemical Engineering Department.”*

Jason Shenefield, President and CEO, Phelps Health, passionately exclaims *“The proposed BME BS program at Missouri S&T will be instrumental in preparing graduates to meet this demand and contribute significantly to the future of healthcare.”* Furthermore, Phelps Health expresses interest in working with us to *“explore new opportunities for educational initiatives, internships, and research activities through this program”*. He adds that *“such a program will greatly benefit our healthcare system, the university, and the broader community by fostering the growth of biomedical engineering professionals and promoting innovative healthcare solutions.”*

Justin Sperry, Vice President – Transformational Technology and Chesterfield Site Head, Pfizer, states that *“...there is a significant need for highly skilled professionals with a strong foundation in the principles of biomedical engineering. The proposed BME BS program at Missouri S&T would help address this need by preparing students for successful careers in these rapidly evolving fields.”* He further adds that *“Missouri S&T's reputation for excellence in engineering education and research, combined with its strategic location in the heart of the Midwest, makes it an ideal institution to develop such a program. The university's proximity to major biomanufacturing and biomedical hubs will enable students to engage in cutting-edge research and gain valuable industry experience through internships and co-op opportunities. This, in turn, will help build a strong talent pipeline to support continued growth and innovation in the biopharmaceutical and biomedical sectors.”*

Mart Berutti, Vice President Sales, Life Sciences of Emerson points out that *“The Life Sciences industry is changing rapidly as the promise of personalized healthcare grows under the development of new cell, gene, and tissue therapies.”* He states that *“Emerson's challenge to deliver value for these new therapies will require engineering staff that includes traditional Chemical and Biological Engineering foundation with knowledge of therapy delivery methods, clinical data management, and other new skills. The addition of a Biomedical*

Engineering BS program would grow our corporate body of knowledge and prepare us well for future challenges.”

Charles W. Lyon, Senior Vice President and Chief Commercial Officer, FutureFuel Chemical Company, points out that “It would be excellent to also recruit engineers and scientists associated with a new program like this to support our strategy for the pharma industry”. He sees “opportunities for FutureFuel and the department to collaborate in joint research projects in areas such as process development and design (ie. flow reactor technology)”. He stresses that the Biomedical Engineering program and his company can mutually support each other, exploring untapped potential for success.

Sarah Bock, Director Capital Engineering, Curium, indicates that “Curium, a leading global manufacturer and distributor of radiopharmaceutical products, stands to benefit greatly from graduates of the BME program at Missouri S&T.” She adds that “The establishment of a BME program at Missouri S&T will address the increasing demand for biomedical engineers, many of whom desire to stay in the St. Louis area or Missouri after graduation. As the healthcare industry continues to grow, there will be a need for skilled professionals capable of developing and implementing innovative solutions to pressing medical challenges.”

Ralph Grant, Director of Business Development-Associate, Clark, Richardson and Biskup Consulting Engineers, Inc., states that establishing this new program at Missouri S&T “*is an exciting and transformative step towards advancing healthcare technology and research in St. Louis Metropolitan area and in the state of Missouri*”, “*ultimately contributing to a healthier, more sustainable future for the people of Missouri and beyond*”.

Fred Kielhorn, CEO, DeNovix Inc. “attests to the importance of a well-rounded education in biomedical engineering for those entering the field.” He states “The establishment of a BME BS program at Missouri S&T would not only help address the growing demand for qualified professionals in the industry but also strengthen the university's reputation as a leading institution in the field of engineering.”

Brian K. Donley, P.E., bd Solutions, LLC, says “The proposed Biomedical Engineering program combines the department’s established chemical engineering fundamentals with a specialized curriculum to equip graduates with the skills needed to excel in multiple, new career fields, such as biomaterials, drug development and biomedical device design. In addition, this program will prepare students to solve the unique problems of managing research and production in the rapidly growing healthcare industry.”

Dr. Jorge A. Ochoa, Managing Partner, Principal Engineer, Biomedical Dynamics LLC, states that “The proposed program prospectus I reviewed meets the present and future needs of the healthcare industry in the United States and internationally. The demand for biomedical engineers is anticipated to increase substantially in the coming years, as the aging population, chronic diseases, and technological advancements continue to drive the expansion of the healthcare industry. By establishing this program, Missouri S&T can help

meet this demand and prepare future generations of biomedical engineers to positively impact society.”

In addition to the external letters of support, there are two internal letters of support that are from: Dr. Colin Potts, Provost and Executive Vice Chancellor for Academic Affairs, and Dr. David Borrok, Vice Provost and Dean of College of Engineering and Computing.

The program's proposed curriculum is designed to align with the key competencies that employers are looking for in graduates, ensuring that students are well-equipped for success in the workforce. In particular, key competencies employers may seek include:

- **Strong foundation in engineering principles:** Graduates should have a solid understanding of engineering concepts and the ability to apply them to biomedical applications.
- **Expertise in biomanufacturing processes:** Employers may expect graduates to be knowledgeable about bioprocessing techniques, equipment, and the production of biological products, such as pharmaceuticals and medical devices.
- **Materials science knowledge:** Graduates should be familiar with biomaterials, their properties, and applications in medical devices and other healthcare products.
- **Problem-solving and critical thinking skills:** The ability to analyze complex problems, develop innovative solutions, and make data-driven decisions is essential in the biomedical engineering field.
- **Interdisciplinary collaboration:** Graduates should be comfortable working in multidisciplinary teams, incorporating perspectives from engineering and life science disciplines.
- **Effective communication:** Employers may expect graduates to effectively communicate complex technical concepts to diverse audiences, both in writing and verbally.

### *3.A.2. Student Demand for the Program*

Our Lightcast™ report reveals a growing demand for biomedical engineering and bioengineering bachelor's degrees, with a nationwide increase in the number of degrees conferred. In 2021, a total of 8,478 bachelor's degrees in biomedical engineering and bioengineering were awarded by 175 public and private institutions, representing a 21% increase compared to 2017. During the 2017-2021 period, 33 more institutions began to award BME and bioengineering degrees. Among those degrees, 71.0% were awarded by public institutions, 28.6% by private not-for-profit institutions, and only 0.4% by private for-profit institutions. Each institution produced an average of 48.4 BS degrees annually during this time. Furthermore, 86.9% more degrees were awarded in 2021 than in 2012. Job growth of 15.35% is anticipated for biomedical engineers and bioengineers for the next decade (2022-2032). As market and student demand continue to rise, there is still room for growth in available degree programs and capacity in the US.

A good predictor of student demand for our proposed degree program is the enrollment in similar programs within our region. The University of Missouri-Columbia transitioned from a bioengineering program to a BME program in 2018. By 2020, its enrollment increased to 191 students, and 14 BS BME degrees were awarded. In 2021, 24 BME degrees were awarded. This program has demonstrated a strong positive enrollment trajectory, indicating a similar potential for our new degree program.

There are also additional BME programs offered by private institutions in Missouri, including Washington University in St. Louis and Saint Louis University. Although these programs graduate a substantial number of students annually (120 completions in total in 2021), we feel there is still ample room for an additional program within the UM System. The geography and demographics of the pool of students we recruit to S&T also tend to be different than those of private institutions, and S&T’s national reputation for outstanding “return-on-investment” for our undergraduate engineering degrees. Recently, S&T was ranked one of the nation’s top 10 “high-value institutions,” according to a March 27 Times article by Frank Bruni titled “*There’s Only One College Rankings List That Matters.*” Such national reputation will attract students who might be otherwise challenged by the costs of those other programs.

At Missouri S&T, there is substantial interest in a BME BS program. Our department has a history of offering chemical engineering BS degrees with a biochemical engineering emphasis, and there is an existing BME minor administered within the Materials Science and Engineering Department. The table below shows sustained interest in BME education on our campus, with an average of 21 individuals annually graduating with either a BME minor or biochemical engineering emphasis or both between 2017 and 2021.

Degree Awarded	AY17-18	AY18-19	AY19-20	AY20-21	AY21-22
Biomedical Engineering Minor	13	11	13	19	11
Biochemical Engineering Emphasis	13	6	10	15	12
Dual Minor & Emphasis	1	2	4	6	4
Total Individuals	25	15	19	28	19

Many students pursuing the emphasis area or minor would likely have chosen a BME BS program had one been available. Many other students probably opted not to attend Missouri S&T due to the lack of a formal BME degree. Given our data, it would be reasonable to anticipate an initial enrollment of 19 students in the new BME BS program, with an annual growth of approximately 25% for the first five years of the program, consistent with national averages. This growth will allow us to reach our goal of enrolling around 124 students in the program within five years.

**Table 1a. Student Enrollment Projections** (anticipated total number of students enrolled in the program during the first five fall semesters following implementation.)

<b>Year:</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Full-time</b>	19	42	70	96	124
<b>Part-time</b>	0	0	0	0	0
<b>Total</b>	19	42	70	96	124

**Table 1b. New Student Enrollment Projections** (anticipated number of students enrolled in the program during the first five fall semesters following implementation that are new to the University.)

<b>Fiscal Year:</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Full-time</b>	9	32	60	86	114
<b>Part-time</b>	0	0	0	0	0
<b>Total</b>	9	32	60	86	114

We anticipate to accept internal transfer students to this new program and estimate 10 transfer students per year in years 1-5.

Table 1c. Projected Number of Degrees Awarded

<b>Year:</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
<b># of Degrees Awarded</b>	0	0	0	10	17	30	34	44	51	62

We anticipate students to finish their degrees in 4 or 5 years and expect some transfer students to graduate sooner.

### **3.B. Financial Projections**

A completed Pro Forma for the financial projections was prepared, reviewed and endorsed by S&T's fiscal officer.

#### *3.B.1. Additional Resources Needed*

Resources will be required for supplies in teaching labs; these are projected to increase year-by-year as the program and the expenses increase. As enrollments (and tuition revenue) grow we also plan to add additional faculty members. We have tentatively budgeted for one tenure track faculty member and one non-tenure track teaching faculty member in year three of the program. Budgeting includes the cost of the estimated startup package for the tenure track faculty member. These plans could be staggered, delayed, or even accelerated based on measured enrollment growth, and on staffing priorities in the College of Engineering and Computing.

No new laboratory space or equipment will be required to support the initial cohorts of BME students. Current labs and equipment in Bertelsmeyer Hall, McNutt Hall, and Schrenk Hall

will be utilized. With increasing enrollments, some basic equipment, including incubators, microscopes, cell readers, etc., dedicated to the BME program will need to be purchased.

We have also allocated a portion of our budget to Other/Miscellaneous expenses. These costs, starting at \$17,000 in Year 1 and incrementally increasing in subsequent years, are pivotal for the seamless functioning and sustainability of our program. Items of need include specialized software and software subscriptions, minor maintenance and upgrades to equipment, marketing materials, and conducting workshops.

It is anticipated that by year 5, at least one teaching laboratory in Bertlesmeyer Hall will need to be repurposed and dedicated to the growing BME program, and a second T/TT professor will need to be hired.

### 3.B.2. Revenue

Revenue will be generated solely through tuition and fees from students new to the campus. Additional revenue for undergraduate education programs will be secured through education grants from the National Science Foundation (NSF) and other funding agencies and foundations to enhance the quality and reach of our educational offerings, enabling greater opportunities for students in their academic pursuits.

### 3.B.3. Net Revenue

Starting from the first year, annual revenue is projected to exceed annual expenses.

Table 2. Financial Projections for Proposed Program for Years 1 Through 5.

	Year 1	Year 2	Year 3	Year 4	Year 5
<b>1. Expenses per year</b>					
<b>A. One-time</b>					
New/Renovated Space	0	0	0	0	\$200,000
Equipment	0	\$10,000	\$20,000	\$25,000	\$50,000
Library	0	0	0	0	0
Consultants	0	0	0	0	0
Other (startup package)	0	0	\$400,000	0	\$400,000
<b>Total one-time</b>	<b>0</b>	<b>\$10,000</b>	<b>\$420,000</b>	<b>\$25,000</b>	<b>\$650,000</b>
<b>B. Recurring</b>					
Faculty	0	0	\$175,000	\$182,000	\$295,000
Staff	0	0	0	0	0
Benefits	0	0	\$62,335	\$64,828	\$105,079
Equipment	0	0	0	0	0
Library	0	0	0	0	0
Other (miscellaneous expenses)	\$17,000	\$18,700	\$20,570	\$22,627	\$24,890

Total recurring	\$17,000	\$18,700	\$257,905	\$269,455	\$424,969
Total expenses (A+B)	\$17,000	\$28,700	\$677,905	\$294,455	\$1,074,969
2. Revenue per year					
Tuition/Fees	\$273,888	\$617,545	\$1,049,826	\$1,468,557	\$1,934,824
Institutional Resources	0	0	0	0	0
State Aid -- CBHE	0	0	0	0	0
State Aid -- Other	0	0	0	0	0
Total revenue	\$273,888	\$617,545	\$1,049,826	\$1,468,557	\$1,934,824
3. Net revenue (loss) per year	\$256,888	\$588,845	\$371,921	\$1,174,102	\$859,855
4. Cumulative revenue (loss)	\$256,888	\$845,733	\$1,217,654	\$2,391,756	\$3,251,610

Financial projections for a 50% enrollment scenario have also been considered. In this situation, the program would continue to be financially viable, achieving a positive net revenue from Year 1. In this scenario the hiring of the non-tenure track faculty member is eliminated.

*3.B.4. Academic and Financial Viability*

We anticipate a minimum enrollment of 50 students by Year 5 to ensure academic viability. In this scenario, we would admit approximately 10 students annually and offer one section for each class to accommodate all enrolled students. This approach aligns with the definition of an academically viable program, which is characterized by having adequate talent, resources, and student enrollment to foster a dynamic and engaging learning environment.

We estimate a minimum of 37 students by Year 5 (representing a 30% enrollment scenario) to guarantee financial viability while maintaining academic health. Under this scenario, we will not hire the additional faculty member nor renovate the teaching lab, as planned in the initial “full growth” budget. Therefore, we project an overall enrollment of 50 students to ensure both academic and financial viability are sustained.

Table 3. Enrollment for Academic and Financial Viability

<b>Viability</b>	<b>Minimum Enrollment</b>
<b>Academic</b>	50
<b>Financial</b>	37
<b>Overall</b>	50

### **3.C. Business Plan: Marketing, Student Success, Transition & Exit Strategies**

#### *3.C.1. Marketing Plan*

The marketing plan for our new BME BS degree program will involve a multi-faceted approach to reach our target audience, promote the program's unique offerings, and attract prospective students. Our marketing efforts will be primarily managed by the University's Marketing and Communications Department, with shared responsibility by the Department Chair of Chemical and Biochemical Engineering and our Vice Provost for Enrollment Management.

Key components of our marketing plan include:

**Rebranding:** Once the program is approved, the department will pursue authorization to rebrand as the Doshi Department of Chemical and Biomedical Engineering. This new name will underscore the coexistence of two distinct programs within the department. By effectively conveying its updated identity and vision, the department aims to cultivate robust relationships across academia, industry, and the wider community, and to become an obvious destination for high school students interested in BME careers.

**Digital Marketing:** We will leverage our university's website, social media platforms, and digital media to highlight the program's strengths, share news about research breakthroughs, showcase faculty expertise, and present student success stories. Digital marketing efforts will also include search engine optimization, targeted Google Ads, and social media advertising campaigns.

**Recruitment Events and Campus Visits:** Our admissions team will attend regional and national college fairs, high school visits, and other targeted recruitment events to raise awareness about the program. We will also host open house events, virtual information sessions, webinars, and develop summer camps to provide prospective students and their families with an opportunity to learn more about our program and campus.

**Collaboration with High Schools, Community Colleges, and External Partnerships:** We will establish partnerships with local high schools, community colleges, national organizations, foundations, and community organizations to facilitate dual enrollment, transfer pathways, and joint events to increase program awareness and encourage enrollment. We will also join the campus efforts with the National Consortium of Specialized Secondary Schools of Math, Science and Technology (NCSSSMST) and the Technology Student Association.

**Alumni Engagement and Industry Partnerships:** We will engage our alumni network and industry partners to serve as ambassadors for the program, share their experiences, and help us connect with prospective students and create opportunities for internships, co-op experiences, and job placements for our graduates.

**Press Releases and Announcements:** When the program launches, we will prepare a press release and send out announcements to appropriate professional societies, such as the American Institute of Chemical Engineers, Biomedical Engineering Society, International Society of Pharmaceutical Engineers, American Society for Engineering Education (ASEE), and target corporations through a listserv or other forms of communication.

We will monitor enrollment trends, marketing analytics, and collect feedback from enrolled students to better understand their decision-making process, which will help us refine our marketing efforts. We will evaluate the program annually to track costs and revenue, and make adjustments to marketing and recruiting strategies as needed.

### *3.C.2. Student Success Plan*

To support and retain students in the BME BS program, we will implement a comprehensive student success plan that includes:

**ABET Accreditation:** We will put into place a plan to have the new BME program accredited by the ABET Engineering Accreditation Commission within the first two years of the start of the program; see Section 5.A. ABET accreditation is recognized by employers and academic peers as a measure of program quality and will ensure that the graduates of our program have access to the greatest numbers of employment and academic opportunities

**Academic Advising:** Each student will be assigned a dedicated professional academic advisor to provide guidance on course selection, program requirements, and academic progress. Advisors will also help connect students with campus resources and support services.

**Faculty Mentorship:** Students will be paired with faculty mentors who can offer guidance on undergraduate research projects, internships, and career planning, as well as provide networking opportunities within the industry.

**Tutoring and Supplemental Instruction:** We will work with our office of student success to offer tutoring services and supplemental instruction sessions for challenging courses, giving students additional support to ensure their academic success.

**Peer Mentorship:** Upper-class students will serve as peer mentors to incoming students, providing guidance and support throughout their academic journey. This peer-to-peer connection will foster a sense of community and belonging within the program.

**Workshops and Seminars:** We will organize workshops and seminars focused on topics such as time management, study strategies, and career development to equip students with the necessary skills to succeed academically and professionally.

**Student Organizations:** Students will have the opportunity to join program-related student organizations, which will help them build professional networks and develop leadership skills.

### *3.C.3. Transition Plan*

If the department chair who is primarily responsible for the program leaves the institution or assumes other responsibilities, a transition plan will be in place to ensure program continuity and quality. The plan includes the appointment of an interim department chair by the vice-provost and dean of the College of Engineering and Computing. This will be followed by a national search to identify and hire a new department chair. If the BME degree program coordinator leaves or assumes other responsibilities, the department chair will appoint a new member of the faculty as the program coordinator.

### *3.C.4. Exit Strategy*

If the program underperforms expectations or fails to meet minimum enrollment criteria for financial viability, the following exit strategy will be implemented:

1. A thorough program evaluation will be conducted by the Office of the Provost to identify any areas in need of improvement or adjustment.
2. Marketing and recruitment efforts will be re-assessed and adjusted as needed to attract more students.
3. If the program continues to underperform after implementing these changes, the university will place the program on hiatus to re-evaluate its offerings and strategies.
4. In the event that the program must be discontinued, the department will develop a teach-out plan to ensure that currently enrolled students can complete their degree requirements in a timely manner. This may include offering necessary courses until all enrolled students graduate, or assisting students in transferring to comparable programs at other institutions.

## **4. Institutional Capacity**

Missouri S&T has a strong foundation and the necessary resources to support the implementation of the new BME BS program.

The Doshi Department of Chemical and Biochemical Engineering (ChBE) currently has 12 tenure track (TT)/non-tenure track (NTT) faculty members, 1 lecturer, adjunct faculty, and affiliated faculty. These faculty members will serve as the foundation for the new degree program. If we see enrollment growth as planned over the next three years, we will hire additional faculty members (NTT and T/TT) with specialized expertise in the field to support the expansion of the program.

ChBE is housed in Bertelsmeyer Hall, a recently constructed (2017) 68,500-square-foot, three-story building. The department manages state-of-art equipment and laboratories dedicated to chemical and biochemical engineering research and teaching activities. There is enough existing space in Bertelsmeyer Hall to accommodate the faculty, staff, and class requirements anticipated for the new program. The University also has a Bio-Imaging Facility, a Bioanalytical Laboratory, a Histology Laboratory, and a small animal vivarium, which we will leverage to support the proposed BME program. The BME curriculum will continue to have access to the laboratory space and equipment in McNutt Hall, which is currently utilized for teaching biomaterials courses included in the program.

Missouri S&T offers a wide range of support services, including academic advising, career counseling, and tutoring, which will be available to students enrolled in the new degree program. The university has dedicated academic advisors for engineering students, and the Career Opportunities and Employer Relations (COER) office provides specialized support for engineering students seeking internships, co-ops, and full-time positions.

Tuition revenue from the increased enrollment in these programs, which is projected to reach 124 students in the BS program within five years, will contribute to the financial sustainability of the program. With this strong institutional capacity, Missouri S&T is well-positioned to successfully develop and implement the new BME BS degree program, ensuring that students have access to high-quality education and the necessary resources to excel in their chosen fields.

## **5. Program Characteristics**

### **5.A. Program Outcomes**

As defined by ABET (incorporated as the Accreditation Board for Engineering and Technology, Inc.), graduates of the BME program are expected to have:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. an ability to communicate effectively with a range of audiences.
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.

7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Upon completion of the BME BS degree program with a focus on biomanufacturing and biomaterials tracks, students will have acquired a comprehensive set of knowledge, skills, and abilities specific to these areas of the field. Graduates will have a strong foundation in engineering principles, proficiency in biomanufacturing processes, and a deep understanding of biomaterials and their applications in BME.

In the biomanufacturing track, students will learn about the design, development, and optimization of biological products. They will gain hands-on experience with state-of-the-art techniques and current and new equipment used in the production and testing of these products.

In the biomaterials track, students will acquire knowledge about the properties, design, and applications of various materials used in BME, such as polymers, ceramics, metals, and composites. They will learn how to select and customize these materials for specific biomedical applications, taking into consideration biocompatibility, mechanical properties, functionality, and other factors.

By focusing on these specialized tracks, graduates will be well-prepared for careers in various sectors of the biomedical engineering field, including biomanufacturing, biomaterials research and development, medical device design, and tissue engineering, and they will be well-prepared to pursue advanced degrees related to the medical sciences and engineering. Additionally, their interdisciplinary knowledge and problem-solving skills will enable them to contribute effectively to multidisciplinary teams and projects, enhancing their value in the job market.

## **5.B. Program Design & Content**

To design the curriculum for the BME BS program, we reviewed the curricula of successful BME programs at peer institutions to identify best practices and key components that contribute to a well-rounded education. Such reviews will be done periodically to ensure that our program remains competitive and up-to-date with the latest developments in the field. Moreover, the courses were chosen to align with the program outcomes, including those required for ABET accreditation, ensuring that students gain the necessary knowledge and skills to excel in their chosen career paths. We also focused on a comprehensive curriculum that encompasses a balance of theoretical knowledge, practical skills, and hands-on experiences, and that reflects the interdisciplinary strengths of the S&T faculty who will participate in the program. The curriculum includes core courses in BME and electives that allow students to explore specialized areas.

In alignment with ABET criteria, the following Program Educational Objectives (**PEOs**) for our BME BS program have been adopted:

- Program graduates will make a meaningful impact as individual contributors or leaders in their chosen industry, business, and community, by utilizing their biomedical engineering knowledge and skills to improve human health and well-being.
- Program graduates will work collaboratively in multidisciplinary teams to enhance the economic and societal environment of their industry sector and community, while addressing diverse needs and advancing the field of biomedical engineering.
- Program graduates will continuously expand their career skills and adapt to the evolving needs of the profession through lifelong learning, staying current with emerging technologies, and methodologies in biomedical engineering.

The proposed BS program in BME will leverage mathematics, engineering, and science courses already available across our campus, including components from chemical engineering, biological sciences, chemistry, computer science, electrical engineering, materials science and engineering, mathematics and statistics, and mechanical engineering. The curriculum also requires the development of three new core courses, (1) Intro to Transport for Biologicals (BME3xxx), (2) Biomedical Engineering Capstone Design I (BME4xxx) & (3) Biomedical Engineering Capstone Design II (BME4xxx).

Recently two courses have been added to our biochemical engineering emphasis and will be used for the biomanufacturing track: (1) Drug and Gene Delivery, (2) Vaccine Manufacturing. In addition, the department is working to add two new courses (1) Biomedical Polymers and Metals, (2) Hard Tissue Medical Devices, both of which will be taught by our newly hired professor. These two courses will be used for the biomaterials track. These courses have been carefully designed to enhance the curriculum and provide students with specialized knowledge and skills relevant to the rapidly evolving field of biomedical engineering.

By incorporating these new required courses into the curriculum, the BME BS program at Missouri S&T will ensure that graduates are well-equipped to tackle complex challenges and contribute to the advancement of biomedical engineering in various industries and research settings. Additional courses may be added or substituted for others in the future in response to changes in market demand for key skills.

Our curriculum includes two tracks: (1) biomanufacturing, and (2) biomaterials. In addition, we have specifically designed each track such that students can also complete the pre-med minor currently offered by our Biological Sciences Department. We have identified pathways where students can get the BME BS degree with the pre-med minor, which is offered by Department of Biological Sciences at Missouri S&T, without taking additional course hours. The pre-med minor focuses on adding additional biological sciences skills and is geared towards students who have an aspiration to attend medical school. To get the minor, students would simply need to choose the proper electives for the BME degree program, which already has a pre-medicine approved curriculum. Students from Missouri S&T have achieved impressive success in gaining admission to medical schools nationwide. Notably, these students have shown remarkable success in securing placements at MU and UMKC medical schools. Over the past two decades, out of 56 students admitted to medical schools, 30 were accepted into MU and UMKC.

Students in the biomanufacturing track will learn skills associated with the production of biopharmaceuticals, downstream processing, and pharmaceutical engineering, whereas, the biomaterials track focuses on coursework for students to develop an understanding of how engineered materials are utilized in biomedical applications and how they interact with biological systems. In the future, we may consider adding additional tracks, such as bioinstrumentation, biomechanics, and bioinformatics, to meet student demand and market need. The suggested four-year plans of study for each track, including the pre-med minor, are shown below. The prerequisites for the BME program are also outlined.

### 1) Biomanufacturing Track

<b>Biomanufacturing Track</b>					
<b>Freshman</b>					<b>Total credits</b>
FE 1100	Intro to Engineering	1	CompSci 1500	Intro to Computing	3
Chem 1100	Lab Safety	1	Math 1215	Calculus II	4
Chem 1310	General Chem I	4	Chem 1320	General Chem II	3
Chem 1319	General Chem I Lab	1	Phys 1135	Physics I	4
Math 1214	Calculus I	4	Track Elec	Choice	3
Hist/PolSci	Choice	3			
Engl 1120	Exposition And Argumentation	3			
		<b>17</b>			<b>17</b>
					<b>34</b>
<b>Sophomore</b>					
Econ 11/1200	Micro or Macro Economics	3	Math 3304	Differential Equations	3
Math 2222	Calculus III	4	Phys 2135	Physics II	4
BioSci 2213/19	Cell Biology/Lab	4	ChemEng 2110	Thermodynamics I	3
ChemEng 2100	Mass & Energy Balances	4	ChemEng 3210	Intro to Biomedical Engineering	3
			Chem 2210/19	Organic Chemistry I/Lab	4
		<b>15</b>			<b>17</b>
					<b>32</b>
<b>Junior</b>					
BME 3xxx	Intro to Transport for Biologicals	4	Engl 3560	Technical Writing	3
ChemEng 3120	Thermodynamics II	3	SP&MS 1185	Principles of Speech	3
Stat 3425	Intro to Biostatistics	3	H/SS elect	Elective	3
BioSci 3333/59	Anatomy and Physiology I/Lab	4	ChemEng 5250	Bioseparations	3
Phil 3223	Bioethics	3	ChemEng 3150	Reactor Design	3
		<b>17</b>			<b>15</b>
					<b>32</b>
<b>Senior</b>					
BME 4xxx	BioMed Eng Design I	3	BME 4xxx	BioMed Eng Design II	3
ChemEng 4201	Bioseparations Lab	3	ChemEng 4220	Bioreactor Lab	3
ChemEng 4241	Safety	3	UL H/SS	Upper-level elective	3
MS&E 5210	Tissue Engineering	3	ChemEng 5xxx	Vaccine Manufacturing	3
ChemEng 4210	Bioreactors	3	Track Elect	Choice	3
		<b>15</b>			<b>15</b>
					<b>30</b>
					<b>128</b>

## Track Electives

BioSci 1113/1219	General Biology/Lab	4
Chem 2220/2229	Organic Chemistry II/Lab	4
ChemEng3131	Separations	3
ChemEng 3141	Process Operations	3
ChemEng 4110	Process Control	3
BME 5xxx	Drug and Gene Delivery	3
BME 5xxx	Hard Tissue Med Devices	3
BioSci 2223	General Genetics	3
BioSci 4353	Cancer Cell Biology	3
BioSci 4373	Stem Cell Biology	3

### **Hist/PolSci Requirement:** Hist 1200, Hist 1300, Hist 1310, or PolSci 1200

Notwithstanding any prerequisite requirements, track electives may be taken in any semester. Students enrolled in the biomanufacturing track who wish to pursue a pre-med minor should consider selecting BioSci 1113/1219 (4 credits) as their track elective in year 1. In addition, they must take Chem 2220/2229 (4 credits) for a later track elective. Both courses are necessary requirements for a pre-med minor in the Biological Sciences Department. Students less interested in the pre-med minor may decide to take other electives instead. Our professional advisor will guide students in selecting courses that enable them to make progress towards earning their degree within a four-year time frame.

## 2) Biomaterials Track

### **Biomaterials Track**

					<b>Freshman</b>		<b>Total credits</b>	
FE 1100	Intro to Engineering	1	CompSci 1500	Intro to Computing		3		
Chem 1100	Lab Safety	1	Math 1215	Calculus II		4		
Chem 1310	General Chem I	4	Chem 1320	Gen Chem II		3		
Chem 1319	General Chem I Lab	1	Phys 1135	Physics I		4		
Math 1214	Calculus I	4	Track Elec	Choice		3		
Hist/PolSci	Choice	3						
Engl 1120	Exposition And Argumentation	3						
		<b>17</b>				<b>17</b>		<b>34</b>
					<b>Sophomore</b>			
Phys 2135	Physics II	4	Math 3304	Differential Equations		3		
Math 2222	Calculus III	4	Stat 3425	Intro to Biostatistics		3		
Chem 2210	Organic Chemistry I	3	Chem2220	Organic Chemistry II		3		
BioSci 2213/19	Cell Biology/Lab	4	ChemEng 3210	Intro to Biomedical Engineering		3		
Cer Eng 2210	Ceramics in the Modern World	2	Civ Eng 2200	Statics		3		
		<b>17</b>				<b>15</b>		<b>32</b>

<b>Junior</b>					
BME 3xxx	Intro to Transport for Biologic	4	Engl 3560	Technical Writing	3
Cer Eng 3230	Thermodynamics of Materials	3	Track elective	Choice	3
Cer Eng 3220	Phase Equilibria	3	Sp&MS 1185	Principles of Speech	3
BioSci 3333/59	Anatomy and Physiology I/La	4	Econ 11/1200	Micro or Macro Economics	3
BME 4xxx	Biomed Polymers & Metals	3	MS&E 5310	Biomaterials I	3
				<b>17</b>	<b>15</b>
<b>32</b>					
<b>Senior</b>					
BME 4xxx	BioMed Eng Design I	3	BME 4xxx	BioMed Eng Design II	3
MS&E 5210	Tissue Engineering	3	BioSci 3783	Biological Design & Innovation	3
Phil 3223	Bioethics	3	BME 5xxx	Hard Tissue Med Devices	3
Track elective	Choice	3	BME 5xxx	Drug and Gene Delivery	3
UL H/SS	Upper-level elective	3			
				<b>15</b>	<b>12</b>
<b>27</b>					
<b>125</b>					

**Track Engineering Electives: At least one engineering course needed**

ChemEng 5250	Bioseparations	3
MS&E 4810	Chemistry & Inherent Properties of Polymers	3
MS&E 5810	Introduction to Polymeric Materials	3
MS&E 5460	Molecular Engineering of Materials	3
ElecEng 2100/01	Circuits/Lab	4
ElecEng 2200/01	Electronic Devices/Lab	4

**Track Non-Engineering Electives**

Chem 2219	Organic Chemistry I Lab	1
Chem 2229	Organic Chemistry II Lab	1
BioSci 1113/1219	General Biology/Lab	4

BioSci 4666	Nanobiotechnology	3
BioSci 4383	Toxicology	3
BioSci 5533	Pharmacology	3

**Hist/PolSci Requirement:** Hist 1200, Hist 1300, Hist 1310, or PolSci 1200

A minimum of one engineering track elective must be taken. Notwithstanding any prerequisite requirements, track electives may be taken in any semester. Students enrolled in the biomaterials track who wish to pursue a pre-med minor should consider selecting BioSci 1113/1219 (4 credits) as their track elective in year 1. In addition, they must take Chem 2220/2229 (4 credits) for a later track elective. Both courses are necessary requirements for a pre-med minor in the Biological Sciences Department. Students less interested in the pre-med minor may decide to take other electives instead. Our professional advisor will guide students in selecting courses that enable them to make progress towards earning their degree within a four-year time frame.

## **5.C. Program Structure**

### *5.C.1. Program Structure Form*

The program includes two tracks, 1) Biomanufacturing, and 2) Biomaterials, with each having a set of courses that are specifically designed for the track's focus. Each track is designed to meet the ABET criteria for biomedical engineering.

#### 1) Biomanufacturing Track

- Total Credits Required for Graduation: 128
- Residence requirements, if any: None
- General education
  - a. Total general education credits: 24

Courses (specific course or distribution area and credit hours):

<b>Course</b>	<b>Hrs</b>	<b>Course</b>	<b>Hrs</b>	<b>Course</b>	<b>Hrs</b>
<b>Hist/PolSci: Choice</b>	3	Engl 1120: Exposition and Argumentation	3	Econ 11/1200: Micro or Macro Economics	3
<b>Phil 3223: Bioethics</b>	3	Engl 3560: Technical Writing	3	SP&MS 1185: Principles of Speech	3
<b>H/SS elect: Elective</b>	3	UL H/SS: Upper- level elective	3		

- Major Requirements
  - a. Total credits specific to degree: 104 (including math, basic sciences and engineering topics)

Courses (specific course or distribution area and credit hours):

Course	Hrs	Course	Hrs	Course	Hrs
<b>FE 1100: Intro to Engineering</b>	1	Chem 1310: General Chem I	4	Chem 1319: General Chem I Lab	1
<b>Chem 1100: Lab Safety</b>	1	CompSci 1500: Intro to Computing	3	Math 1215: Calculus II	4
<b>Math 1214: Calculus I</b>	4	Phys 1135: Physics I	4	Math 2222: Calculus III: 4	4
<b>Chem 1320: General Chem II</b>	3	ChemEng 2100: Mass & Energy Balances	4	Math 3304: Differential Equations	3
<b>BioSci 2213/19: Cell Biology/Lab</b>	4	ChemEng 2110: Thermodynamics I	3	ChemEng 3210: Intro to Biomedical Engineering	3
<b>Phys 2135: Physics II</b>	4	BME 3xxx: Intro to Transport for Biologicals	4	ChemEng 3120: Thermodynamics II	3
<b>Chem 2210/19: Organic Chemistry I/Lab</b>	4	BioSci 3333/59: Anatomy and Physiology I/Lab	4	ChemEng 5250: Bioseparations	3
<b>Stat 3425: Intro to Biostatistics</b>	3	ChemEng 3150: Reactor Design	3	BME 4xxx: BioMed Eng Design I	3
<b>ChemEng 4201: Bioseparations Lab</b>	3	ChemEng 4241: Safety	3	MS&E 5210: Tissue Engineering	3
<b>ChemEng 4210: Bioreactors</b>	3	BME 4xxx: BioMed Eng Design II	3	ChemEng 4220: Bioreactor Lab	3
<b>ChemEng 5xxx: Vaccine Manufacturing</b>	3	Track Elec: Choice	3	Track Elec: Choice	3

- Free elective credits
  - a. Total free elective credits: 0

Although there are no completely unrestricted electives, students are able to choose from a list of 9 courses to fulfill 6 credit hours of track electives.
- Requirement for thesis, internship, or other capstone experience:
 

All the seniors are required to take capstone design I&II, and to meet S&T requirements for experiential learning activities.
- Any unique features such as interdepartmental cooperation:

Courses that are mandatory for the program will be instructed by faculty members from different departments, such as Chemical and Biochemical Engineering, and Computer Science. For the track elective courses, students may choose from a range of degree programs, such as those offered by Chemical and Biochemical Engineering, Biological Sciences, and Chemistry.

2) Biomaterials Track

1. Total Credits Required for Graduation: 125
2. Residence requirements, if any: None
3. General education
  - a. Total general education credits: 21

Courses (specific course or distribution area and credit hours):

Course	Hrs	Course	Hrs	Course	Hrs
<b>Hist/PolSci: Choice</b>	3	Engl 1120: Exposition and Argumentation	3	Econ 11/1200: Micro or Macro Economics	3
<b>Phil 3223: Bioethics</b>	3	Engl 3560: Technical Writing	3	SP&MS 1185: Principles of Speech	3
<b>UL H/SS: Upper-level elective</b>	3				

4. Major Requirements

- a. Total credits specific to degree: 104 (including math, basic sciences and engineering topics)

Courses (specific course or distribution area and credit hours):

Course	Hrs	Course	Hrs	Course	Hrs
<b>FE 1100: Intro to Engineering</b>	1	Chem 1310: General Chem I	4	Chem 1319: General Chem I Lab	1
<b>Chem 1100: Lab Safety</b>	1	Math 1214: Calculus I	4	CompSci 1500: Intro to Computing	3
<b>Math 1215: Calculus II</b>	4	Chem 1320: Gen Chem II	3	Phys 1135: Physics I	4
<b>Phys 2135: Physics II</b>	4	Math 2222: Calculus III: 4	4	Chem 2210: Organic Chemistry I	3
<b>BioSci 2213/19: Cell Biology/Lab</b>	4	Cer Eng 2210: Ceramics in the Modern World	2	Math 3304: Differential Equations	3

<b>Stat 3425: Intro to Biostatistics</b>	3	Chem2220: Organic Chemistry II	3	ChemEng 3210: Intro to Biomedical Engineering	3
<b>Civ Eng 2200 : Statics</b>	3	BME 3xxx: Intro to Transport for Biologicals	4	Cer Eng 3230: Thermodynamics of Materials	3
<b>Cer Eng 3220: Phase Equilibria</b>	3	BioSci 3333/59: Anatomy and Physiology I/Lab	4	BME 4xxx: Biomed Polymers & Metals	3
<b>MS&amp;E 5310: Biomaterials I</b>	3	BME 4xxx: BioMed Eng Design I	3	MS&E 5210: Tissue Engineering	3
<b>BME 4xxx: BioMed Eng Design II</b>	3	BioSci 3783: Biological Design & Innovation	3	BME 5xxx: Hard Tissue Med Devices	3
<b>BME 5xxx: Drug and Gene Delivery</b>	3	Track elective: Choice	3	Track elective: Choice	3
<b>Track elective: Choice</b>	3				

5. Free elective credits

a. Total free elective credits: 0

Although there are no completely unrestricted electives, students are able to choose from a list of 6 engineering courses to fulfill 3 credit hours of engineering track electives and a list of 12 combined engineering and non-engineering courses to fulfill the remaining 6 credit hours of track electives.

6. Requirement for thesis, internship or other capstone experience:

All the seniors are required to take capstone design I & II, and to meet S&T requirements for experiential learning activities.

7. Any unique features such as interdepartmental cooperation:

Courses that are mandatory for the program will be instructed by faculty members from different departments, including chemical and biochemical engineering, computer science, civil engineering, materials science and engineering. For the track elective courses, students may choose from a range of degree programs, such as those offered by Chemical and Biochemical Engineering, Electrical Engineering, Materials Science and Engineering, Biological Sciences, and Chemistry.

## **5.D. Program Goals and Assessment**

This program is designed to prepare students for careers at the intersection of engineering, medicine, and biology. Admission to this program follows the general campus admission process.

## Assessing Learning Outcomes:

The BME program will employ a variety of assessment methods to ensure students are meeting learning outcomes. These may include:

1. Coursework and lab assessments
2. Student performance on national and local assessments
3. Senior capstone projects and presentations
4. Internship evaluations
5. Surveys of graduates and employers

The assessment process for the BME BS program at Missouri S&T is rigorous and comprehensive, designed to ensure continuous improvement and alignment with the program's educational objectives. The process is centered around performance indicators (PIs) for each student outcome (SO) and a graduating student exit survey.

*Performance Indicators:* Performance indicators are measurable quantitative assessments of students progressing through the BME Curriculum. These indicators link specific courses, curricula, and extracurricular activities directly to student outcomes and indirectly to program educational objectives. Performance indicators are the foundation for rigorous assessment of student outcomes by defining diagnostic problems, special assignments, projects, and reports through the designated courses and student activities. They provide essential information for assessing student learning and the attainment of outcomes related to critical knowledge, skills, and behaviors necessary for future careers.

To prepare for ABET accreditation, faculty collect data every semester on a three-year cycle, and the department faculty and the department's Industrial Advisory Council evaluate this data at the end of each cycle. The Industrial Advisory Council has recently been reconstituted to include members with backgrounds in chemical engineering and biomedical engineering. For each performance indicator, multiple assessments are defined and conducted to increase the reliability of the assessment.

**Graduating Student Exit Survey:** The exit survey, given to all graduating seniors, provides an overall evaluation of the student outcomes. The survey consists of questions that assess the accomplishment and importance of the student outcomes. In general, the results of the rigorous assessment through performance indicators reflect the effectiveness of the program courses in meeting individual criteria, while the exit survey results reflect the effectiveness of the entire undergraduate program.

The university requires all students to complete an experiential learning activity, for which students must write a reflection essay. This essay is also used for the assessment process.

Feedback from the Industrial Advisory Council, based on their interactions with undergraduate students, is considered a supplemental assessment for the student outcomes. The exit survey response rate has improved to nearly 100% every semester, enabling the program to gather valuable feedback from students.

The Department chair and coordinator for the BME program at Missouri S&T will use this assessment process to continuously improve the curriculum, ensuring that students gain the necessary skills and knowledge for success in their future careers. By regularly evaluating student outcomes and adjusting the program accordingly, the university demonstrates its commitment to providing a high-quality education in the field of biomedical engineering.

#### Performance Projections:

Based on the rigorous curriculum and the support provided by the university, we project the following performance metrics for students in the BME program:

1. 90% retention rate for first-year students.
2. 80% six-year graduation rate.
3. 90% placement rate in related fields within six months of graduation.

#### Additional Measures of Success:

The BME program will use additional measures of success to evaluate the program's effectiveness, including:

1. Number of students participating in undergraduate research projects
2. Number of students receiving scholarships or awards in the field of biomedical engineering
3. Student satisfaction with the program, as measured through exit surveys
4. Survey on whether or not program education objectives are achieved from alumni two to five years post-graduation
5. Employer satisfaction with program graduates, as assessed through surveys and feedback

### **5.E. Student Preparation**

To ensure success in the BME BS program at Missouri S&T, prospective students should focus on building a strong foundation in science, mathematics, and problem-solving skills before entering the program. The following preparation guidelines are recommended for students considering the BME program:

1. Strong background in mathematics: Students should have completed high school courses in algebra, geometry, trigonometry, and pre-calculus. AP or college-level calculus courses are highly recommended.
2. Science coursework: Prospective students should have a solid background in high school biology, chemistry, and physics. Advanced courses, such as AP or college-level courses in these subjects, are strongly encouraged.
3. Problem-solving and critical thinking skills: Students should develop their problem-solving and critical thinking abilities through participation in extracurricular activities, such as science clubs, engineering competitions, or research projects.

4. Communication skills: Biomedical engineers often work in interdisciplinary teams, so strong written and oral communication skills are essential. Students should practice these skills through writing assignments, presentations, and group projects.

#### Target Population:

The BME program is designed for students who have a strong interest in engineering, medicine, and biology, and are motivated to pursue careers in this interdisciplinary field. The target population includes:

1. High school students with strong backgrounds in mathematics and science who are seeking a challenging and rewarding undergraduate engineering program with employment opportunities in the medical and health-related fields.
2. Transfer students from community colleges or other institutions who have completed the necessary foundational coursework and meet the program's GPA requirements.

### **5.F. Faculty and Administration**

The program will draw on the expertise of over twenty existing faculty members from the different departments who are slated to offer courses listed on the curriculum. A list of Chemical and Biochemical Engineering faculty members with qualifications is included as **Appendix 2**.

Approximately 95% of the credit hours in the program will be assigned to full-time faculty members. It is also planned that the required courses will always be taught by full-time faculty members. Dr. Hu Yang, department chair, will be the primary point person for the program, and Dr. Christi Luks, associate chair for academic affairs, will help keep track of activities, students, and advising for the proposed BME BS Degree.

No new faculty hires will be needed to start the degree program. However, new faculty hires in year three and year five of the program are anticipated if warranted by program enrollment growth. These new hires will include NTT and T/TT faculty.

Because the BME degree is interdisciplinary in nature, participating departments and faculty members will have a stake in the program's curriculum, assessment and related features. Moreover, the contributions by faculty members outside the Chemical and Biochemical Engineering department will be recognized and appropriately credited to their home departments. To this end, a program steering committee will be formed that includes at least one faculty member from each participating department. The chair of the committee will be the department chair of the program's home department (initially Chemical and Biochemical Engineering). At the end of each academic year, the committee will be tasked with generating a program evaluation report that includes (but need not be limited to) the following:

- 1) Undergraduate enrollment numbers for the BME program and programs/departments that are affiliated with it.

- 2) Student credit hours taught by each faculty member and department in support of the BME degree.
- 3) A summary of recruiting and retention efforts for the BME degree program with appropriate attribution to faculty members and departments.
- 4) A summary of ABET data collection activities associated the BME degree program with appropriate attribution to faculty members and departments.

This report will be completed annually by August 1 and sent out to the chairs of participating departments, the deans for colleges that host these departments, and the provost. Enrollment numbers in BME and the level of participation in supporting the degree will be considered in the allocation of future resources for the departments and colleges involved.

### **5.G. Alumni and Employer Survey**

We are committed to continuously gathering feedback from both alumni and employers to evaluate and improve the quality of this new program. Surveys and communication channels are utilized to collect relevant information, ensuring that the program meets the expectations and requirements of both alumni and employers. The following methods and schedules are used for collecting feedback from these key stakeholders:

Alumni Survey:

Method: Online questionnaires and mailed surveys are sent to alumni who graduated three to five years prior. The survey focuses on evaluating their satisfaction with the program and the extent to which it prepared them for their careers.

Schedule: Alumni surveys are conducted biennially, allowing for a comprehensive and up-to-date understanding of alumni perspectives.

Expected/desired satisfaction rates: The department aims to achieve a satisfaction rate of at least 80% among respondents, with the goal of continuously improving the program based on alumni feedback.

Employer Survey:

Method: Online questionnaires and surveys are distributed to employers of the program's graduates. The surveys seek to evaluate the preparedness and performance of alumni in their respective workplaces, as well as solicit suggestions for program improvements.

Schedule: Employer surveys are conducted every three years, allowing sufficient time to gather meaningful feedback while keeping the information current.

Expected/desired satisfaction rates: The department aims to achieve a satisfaction rate of at least 85% among employer respondents, using their input to adapt the program to better meet industry needs and expectations.

In addition to the scheduled surveys, the department encourages ongoing communication with alumni and employers through various channels, including departmental events, Industrial Advisory Council meetings, and direct communication with alumni and employers at on-campus career fairs. This continuous feedback loop helps to ensure that the program stays relevant and aligned with the needs of both alumni and employers.

## **5.H. Program Accreditation**

We are committed to maintaining the highest standards of quality in our educational programs. To this end, the department will seek accreditation from ABET, a recognized accrediting body for engineering programs. ABET accreditation assures that the program meets established criteria for preparing students to excel in their chosen fields.

It is important to note that accreditation through the Engineering Accreditation Commission (EAC) of ABET cannot be sought until the first students have graduated from the program. The curriculum for the new BS degree in BME has been designed to achieve ABET accreditation. We will request an initial ABET accreditation review in year 4 when degrees are awarded and a full ABET accreditation review in year 6 for the new BME BS degree.

Process and Timeline for Achieving Accreditation:

- **Self-Study Report:** The department will prepare a comprehensive self-study report, providing detailed information about the program, its objectives, outcomes, curriculum, resources, faculty, and assessment processes. This report will be submitted to ABET approximately one year before the scheduled accreditation visit.
- **On-site Evaluation:** ABET will conduct an on-site evaluation, during which a team of program evaluators (PEVs) will visit the campus to assess the program's compliance with ABET criteria. The evaluation typically occurs in the fall semester, with the specific dates agreed upon by the department and ABET.
- **Evaluation Report and Institutional Response:** Following the on-site visit, the department will receive a draft evaluation report from ABET. The department will have the opportunity to respond to any findings or concerns raised in the report, providing additional information or clarification as needed.
- **Final Accreditation Decision:** The ABET Engineering Accreditation Commission (EAC) will review the self-study report, evaluation report, and institutional response before making a final accreditation decision. This decision is usually communicated to the department within a few months after the EAC's review.
- **Continuous Improvement:** Upon receiving accreditation, the department will continue to monitor and improve the program, ensuring that it remains aligned with ABET criteria and the needs of its constituencies. ABET accreditation is typically valid

for a period of six years, after which the department will need to undergo the reaccreditation process.

By pursuing and maintaining ABET accreditation, the Chemical and Biochemical Engineering Department demonstrates its commitment to providing a high-quality educational experience for its students and preparing them for success in their careers.

## 6. Appendices

### Appendix 1: Letters of Support

- Dr. Colin Potts, Provost and Executive Vice Chancellor for Academic Affairs, Missouri S&T
- Dr. David Borrok, Vice Provost and Dean of College of Engineering and Computing, Missouri S&T
- Bipin Doshi, Trustee Missouri S&T, Board Member KI Foundation, Past Chair Beacon Health System Board, South Bend, Indiana
- Jason Shenefield, President and CEO, Phelps Health
- Justin Sperry, Vice President – Transformational Technology and Chesterfield Site Head, Pfizer
- Mart Berutti, VP Sales Life Sciences, Emerson
- Charles W. Lyon, Senior Vice President and Chief Commercial Officer, FutureFuel Chemical Company
- Sarah Bock, Director Capital Engineering, Curium
- Ralph Grant, Director of Business Development-Associate, Clark, Richardson and Biskup Consulting Engineers, Inc.
- Fred Kielhorn, CEO, DeNovix Inc.
- Brian Donley, Founder, bd Solutions LLC
- Dr. Jorge A. Ochoa, Managing Partner, Principal Engineer, Biomedical Dynamics LLC

### Appendix 2: ChBE Faculty Qualifications ABET Style Summary (page 54)

May 4, 2023

To: UM System Office of Academic Affairs

From: Colin Potts, Provost and Executive Vice Chancellor for Academic Affairs

Subject: New Program Proposal, B.S. Degree in Biomedical Engineering



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I enthusiastically recommend that the proposal for a Bachelor of Science degree in Biomedical Engineering (BME) be advanced to the UM System for their review. This new degree program will be housed in the Department of Chemical and Biochemical Engineering (ChBE) in the College of Engineering and Computing (CEC) and a copy of Dean Borrok's letter of support is attached, along with the proposal itself.

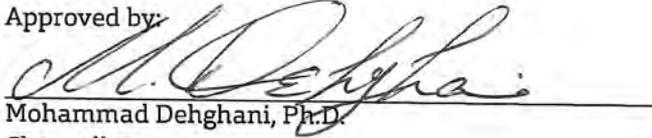
This will be an ABET-accredited degree, one with an emphasis on interdisciplinary engineering skills that will distinguish it from BME degrees currently offered by UM-Columbia and UMKC. Our market analysis reveals increasing demand in Missouri and across our region for students with BME degrees, and this demand is consistent with growth of BME programs across the nation. For Missouri S&T, this degree is central to our overall strategy to grow our biology-and medical -related education and research programs. It will take advantage of our traditional strengths in engineering and the sciences in areas that offer significant opportunities for our students, and it will cultivate expertise to have a significant impact on the health and well-being of the citizens of Missouri.

Although this degree will be housed in ChBE, the proposed curriculum relies on existing interdisciplinary expertise, with core and elective courses offered by CEC (Material Science Engineering, Electrical and Computer Engineering, Mechanical and Aerospace Engineering, in addition to ChBE) and by College of Arts, Science and Education (Biological Sciences, Chemistry), in addition to the core courses associated with our other engineering degrees. The proposed curriculum includes formal tracks that are based on our well-known reputation for biomaterials and biomanufacturing and is intended to prepare students for careers in medical fields. This latter emphasis will help position Missouri S&T for more significant future collaborations with the medical schools in the UM System.

This degree initially requires no additional campus resources. The curriculum is based primarily on existing courses but will also include several new courses being developed by new faculty members in ChBE. If this program grows at the anticipated rate, then additional faculty will be recruited to supplement the current ones. After five years of anticipated enrollment growth and student success

this BME BS program and the newly proposed PhD program in Bioengineering Engineering may provide the conditions to create a separate BME department. That is not, however, assumed in the current proposal.

Approved by:



Mohammad Dehghani, Ph.D.  
Chancellor

5/5/2023  
Date



## College of Engineering and Computing

Date: May 1, 2023

To: Dr. Colin Potts, Provost and Executive Vice Chancellor for Academic Affairs

From: Dr. David Borrok, Vice-Provost and Dean, College of Engineering and Computing

A handwritten signature in black ink, appearing to read "David Borrok".

Subject: Support for the creation of a BS degree in biomedical engineering

The College of Engineering and Computing at Missouri S&T has a critical mass of faculty expertise and student interest in biomedical engineering, but we currently have no degree program in this area. The 10-year employment outlook for biomedical engineers is excellent and it will be challenging for our state and nation to keep up with the demand for highly skilled workers in the healthcare sector. Therefore, creation of a new BS-degree in biomedical engineering is a natural fit for Missouri S&T and the College of Engineering and Computing.

The proposed BS degree in biomedical engineering will be housed within the Department of Chemical and Biochemical Engineering. The curriculum will leverage existing expertise and coursework within the department as well as other engineering (e.g., Electrical, Materials, etc.) and science (e.g., Chemistry, Biology, etc.) disciplines. The program will include formal tracks in biomanufacturing and biomaterials. An option of completion of our existing pre-med minor (offered through our biology department) is provided within each track. This flexible curriculum and added pre-med credential will help to provide a new pipeline of potential students for existing medical schools within the UM System.

A key part of the mission of our college and university is to address societal problems through the development and implementation of new technologies. One of our most important societal challenges is human health and well-being. Therefore, establishing a new undergraduate degree program in biomedical engineering is an affirmation of our core mission.

Missouri S&T also has a strong commitment to increasing the diversity of our student body. Biomedical engineering degrees attract a diverse population of students, which will help serve as a catalyst for diversifying the student body in our engineering college.

Finally, establishing this new degree program is part of our broader campus focus on growing educational and research endeavors in biology-related engineering research. We desire to bring Missouri S&T's engineering expertise to bear on all types of health and medicine solutions, including those identified within the UM system's NextGen Precision Health initiative. Creation of the BS-degree in Biomedical Engineering will allow us to train the engineering workforce of the future at the intersection of engineering and medicine. Graduating students in this crucial area will contribute to the growth and economic development of Missouri and the nation.



BIPIN N. DOSHI  
748 RIVER POINTE PLACE  
MISHAWAKA, INDIANA 46544

April 30, 2023

Dr, Hu Yang  
Department Chair  
Chemical and Biochemical Engineering  
101 Bertelsmeyer Hall  
1001 N. State Street  
Rolla, Missouri 65409

Dear Dr. Yang:

I was excited and happy to know that you have an invitation from the University of Missouri system to develop a proposal to establish Biomedical Engineering (BS degree) program.

This invitation has come at the most appropriate time. A growing demand for Biochemists and Biochemical Engineers requires us to develop an industry appropriate curriculum to educate and train engineers who are equally proficient in chemical and biochemical fields. Not only there is a demand on pharmaceutical side of research and understanding of the basic science in developing drugs and treatment of common and some uncommon disease but also delivery of these compounds for specific actions and to minimize side effects. Recent rapid development of mRNA technology and its application in combating recent pandemic COVID 19 illustrates the point.

Educating and training students for these challenging and demanding as well as highly satisfying, not to mention highly compensated, careers should be our goal as we augment the Chemical and Biochemical Engineering curriculum.

I know several universities have undertaken this task. As I had mentioned to you one of our friend's daughter is enrolled in a Ph. D. program at a well-known University to work on new methods of drug delivery. Missouri S & T is well placed to educate students for rewarding careers in:

- Biomedical device designs and development.
- Pharmaceutical Industry.
- Improved delivery of drugs to compromised areas and reducing side-effects.
- Medical field including management and consulting, and
- Advanced degree in one of the many related fields.

I am sure that at the Missouri State level there is awareness of these disciplines to educate students and develop a business climate in the State. There is a need nationwide for these curriculums and MST is well positioned to leverage its various programs in a well-coordinated program within the Chemical and Biochemical Engineering Department.

I wish you well in presenting this program to the University of Missouri System and developing an innovative program for B.S. Degree in Biomedical Engineering in the department.

Sincerely,



Bipin Doshi

B.S. (1962) and M.S. (1963) Chem Engr.

Trustee Missouri S & T

Board Member KI Foundation

Past Chair Beacon Health System Board, South Bend, Indiana

April 27, 2023

Hu Yang, PhD  
Department Chair and Professor  
Doshi Department of Chemical and Biochemical Engineering  
Missouri University of Science and Technology, Rolla, MO 65401

**Subject: Letter of Support for Bachelor of Science Biomedical Engineering Program**

Dear Dr. Yang,

I am writing to express our interest and support for the proposed Bachelor of Science in Biomedical Engineering (BME BS) program within the Doshi Department of Chemical and Biochemical Engineering at Missouri S&T. As the primary healthcare provider in our region, we recognize the value and potential of such a program in advancing the field of biomedical engineering and meeting the growing demand for skilled professionals.

Phelps Health has a long-standing and fruitful relationship with Missouri S&T through our strategic partnership known as the Ozark Biomedical Initiative, where we have collaborated on numerous research projects, educational initiatives, and other ventures that have ultimately improved patient care and advanced healthcare innovation. The establishment of a BME BS program at Missouri S&T will not only strengthen this relationship, but also provide invaluable resources and opportunities for interdisciplinary collaboration and education between our two institutions.

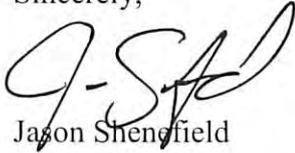
Our healthcare system has witnessed an increasing demand for biomedical engineers who can merge engineering principles, biological sciences, and medicine to develop innovative solutions for the diagnosis, treatment, and prevention of various medical conditions. The proposed BME BS program at Missouri S&T will be instrumental in preparing graduates to meet this demand and contribute significantly to the future of healthcare.

Phelps Health looks forward to working with you to explore new opportunities for educational initiatives, internships, and research activities through this program. We also look forward to the opportunity to participate in advisory committees to help shape the program's curriculum and ensure that it remains aligned with the evolving needs of the healthcare industry.

We wholeheartedly support the development of a BME BS program within the Doshi Department of Chemical and Biochemical Engineering at Missouri S&T. We believe that such a program will

greatly benefit our healthcare system, the university, and the broader community by fostering the growth of biomedical engineering professionals and promoting innovative healthcare solutions.

Sincerely,



Jason Shengfield  
President & CEO  
Phelps Health



05-Jun-2023

Missouri University of Science and Technology  
1101 N. State Street  
Rolla, MO 65409  
ATTN: Dr. Hu Yang- Chair, Doshi Department of Chemical and Biochemical Engineering

Reference: Non-Binding Letter of Support for the development of a new Bachelor of Science program in Biomedical Engineering (BME) within the Doshi Department of Chemical and Biochemical Engineering at Missouri University of Science and Technology (Missouri S&T) ("Proposal")

Dear Dr. Yang:

Thank you for contacting us on a non-confidential basis seeking a letter from us to give non-binding and general support to the Proposal.

In recent years, the biopharmaceutical and biomedical industries have experienced tremendous growth, driven by innovative research, novel therapies, and advanced manufacturing technologies. As a result, there is a significant need for highly skilled professionals with a strong foundation in the principles of biomedical engineering. The proposed BME BS program at Missouri S&T would help address this need by preparing students for successful careers in these rapidly evolving fields.

Missouri S&T's reputation for excellence in engineering education and research, combined with its strategic location in the heart of the Midwest, makes it an ideal institution to develop such a program. The university's proximity to major biomanufacturing and biomedical hubs will enable students to engage in cutting-edge research and gain valuable industry experience through internships and co-op opportunities. This, in turn, will help build a strong talent pipeline to support continued growth and innovation in the biopharmaceutical and biomedical sectors.

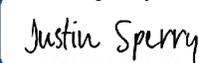
As the area of research in the Proposal may be of potential interest to Pfizer in the future, we would be interested in maintaining an open dialogue with you on a non-confidential basis (unless we agree otherwise in writing) regarding such technology and any potential related emerging needs at Pfizer. Any such potential future interest by Pfizer will be predicated on several factors, including Pfizer's strategic needs, agreement upon business terms, and Pfizer's completion of an appropriate due diligence process. However, for clarity, neither Pfizer nor you are in any way obliged to negotiate or enter into any agreement in relation to the Proposal or any research performed in relation to the Proposal or otherwise.

We wish you every success in attempting to address this important area of research through your pursuit of this new program.

Sincerely,

**Justin Sperry**

Vice President – Transformational Technology and Chesterfield Site Head

DocuSigned by:  
  
4BF39B0BA71D4B7...

June 5, 2023



**Mart Berutti**  
Vice President Sales  
Life Sciences

**Emerson**  
8070 W Florissant Avenue  
St. Louis, MO, 63136  
United States

M +1 314 452 3386  
Mart.Berutti@Emerson.com

April 26, 2023

Ref: Proposed Biomedical Engineering BS program for Missouri S&T

Emerson is a leader in the automation and digitalization of the Life Sciences industry in both traditional small molecule and large molecule therapeutics discovery and production as well as the emerging cell, gene, and tissue therapy fields. Our growth and ability to create value for our customers in this market is dependent upon the engineering talent pool available to our organization. Because of this, I strongly recommend that the University of Missouri approved the development of a Biomedical Engineering BS program for Missouri S&T.

To follow are some reasons to consider this program in support of companies like Emerson that hire STEM talent:

- As a company based in St. Louis, Missouri, Emerson provides a career path in the Life Sciences for engineering and management for Missouri S&T graduates. I personally am a BS Chem E graduate of MS&T and have had multiple positions throughout my career to deliver solutions in the Life Sciences industry including my current position as VP Sales Life Sciences.
- Emerson has targeted Life Sciences as one of our key industries for market growth and customer value creation. This was highlighted in our recent investors conference with references given by several global Life Sciences customers.
- Emerson's Midwest Engineering Center with offices in St. Louis and Kansas City deliver solutions to the Life Sciences industry. These teams recently were instrumental in delivering automation, digitalization, and dynamic simulation solutions for Covid-19 therapies driven by Operation Warp speed. This center is populated by a large number of Missouri S&T graduates currently and actively recruits from the campus, participating in annual career fairs and mentoring programs. Having an engineering center report to me in a previous role at Emerson, I can verify that we relied heavily on Missouri S&T to fill our engineering talent need.
- The Life Sciences industry is changing rapidly as the promise of personalized healthcare grows under the development of new cell, gene, and tissue therapies. These new therapies combine proven small molecule and large molecule therapies with advanced diagnostics and clinical delivery to improve patient health. Emerson's challenge to deliver value for these new therapies will require engineering staff that includes traditional Chemical and Biological Engineering foundation with knowledge of therapy delivery methods, clinical data management, and other new skills. The addition of a Biomedical Engineering BS program would grow our corporate body of knowledge and prepare us well for future challenges.



**Mart Berutti**  
Vice President Sales  
Life Sciences

**Emerson**  
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United States

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[Mart.Berutti@Emerson.com](mailto:Mart.Berutti@Emerson.com)

In summary, for the reasons listed above we strongly recommend that the University of Missouri approved the development of a Biomedical Engineering BS program for Missouri S&T. Please feel free to contact me if you have any questions or I can be of further support.

Best Regards,

A handwritten signature in black ink, appearing to read "M.B.", with a stylized flourish.

Mart Berutti  
Vice President Sales, Life Sciences



April 27, 2023

Dr. Hu Yang  
Chair, Doshi Department of Chemical and Biochemical Engineering  
Missouri University of Science and Technology  
1101 N. State Street  
Rolla, Missouri 65409

Dear Dr. Yang:

I am very excited and honored to write this letter with my strong endorsement and support for the establishment of a Bachelor of Science degree program in Biomedical Engineering within the Doshi Department of Chemical and Biochemical Engineering at Missouri University of Science and Technology. The establishment of this program is critical to support the ever-growing need for engineering professionals to discover, innovate, and successfully execute in a variety of crucially related and important areas. My company, its executives and the Board of Directors are extremely interested in what lies ahead for a program like this and the exciting R&D that will be conducted – and graduates entering their professional careers – in the areas of biotechnology and pharmaceutical development and manufacturing. Under your leadership Dr. Yang, I am certain a new degree program such as this will only further solidify your department's and the university's world class standing and reputation for excellence.

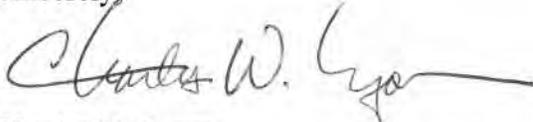
FutureFuel Chemical Company is a specialty chemical company with corporate headquarters in St. Louis, MO and a world-class, fully integrated manufacturing facility sitting on 2,200 acres in Batesville, AR (north-central Arkansas, about a 3 hour drive from Rolla). Despite its relatively recent company name, it has a long and successful history of supporting the pharmaceutical industry. As a heritage Eastman Chemical Company site (established in 1975), this specialty chemical company supplied pharmaceutical intermediates to large, well-known global pharmaceutical companies for human and veterinary API's. The company developed in-house and produced pharma intermediates requiring – and meeting – GMP compliance, as well as non-GMP. Today, the company continues to support the pharmaceutical companies and their critical strategic objective of reshoring the production of key API's, their intermediates, and regulatory starting materials. This is also a key national security focus, and FutureFuel is collaborating with multiple government-funded entities to reestablish reliable, cost-effective domestic manufacturing. In short, FutureFuel's business in the pharma intermediate market segment has been a key foundation of our business, and it is now a strategic growth focus. We have been investing – and will continue to invest – heavily in operations equipment, people (research, analytical, engineering), laboratory facilities (instrumentation, pilot plants, kilo-labs), and infrastructure to support this initiative.

I know you recognize how valuable and attractive a Biomedical Engineering program would be to a company like FutureFuel Chemical Company. We have routinely recruited

chemical engineering (mechanical and electrical engineering too!) graduates from Missouri S&T, and those that have worked for us have (or had) very challenging work and perform at a very high standard. It would be excellent to also recruit engineers and scientists associated with a new program like this to support our strategy for the pharma industry. Secondly, I see opportunities for FutureFuel and the department to collaborate in joint research projects in areas such as process development and design (ie. flow reactor technology). Finally, much opportunity lies ahead for us to identify additional ways the Biomedical Engineering program could support my company's success, and we, in turn, can support the program and department.

Again, I am extremely excited about the prospect of a Biomedical Engineering BS program. The benefits to the industry, the university, our society are immense. I hope your proposal is approved. If I can provide any further affirmation of the need for a Biomedical Engineering BS program at Missouri S&T, please let me know. I am happy to do so.

Sincerely,



Charles W. Lyon  
Senior Vice President and Chief Commercial Officer  
(636) 357-8550

Hu Yang, PhD  
Department Chair and Professor  
Doshi Department of Chemical and Biochemical Engineering  
Missouri University of Science and Technology  
Rolla, MO 65401

Dear Dr. Yang:

I am writing to express my strong support for the proposed Bachelor of Science (BS) program in Biomedical Engineering (BME) at Missouri University of Science and Technology. As someone who recognizes the importance of fostering innovation in the biomedical field, I believe that this program will greatly benefit the Doshi Department of Chemical and Biochemical Engineering and contribute significantly to the growing demand for skilled professionals in St. Louis and in the state of Missouri.

The Doshi Department's commitment to high-quality education and research in chemical and biochemical engineering places it in an excellent position to lead a new BME program. By integrating the expertise of its faculty and resources, the department can provide a solid foundation for students seeking a career in biomedical engineering. Furthermore, the proposed biomanufacturing and biomaterials tracks will enable students to specialize in areas of particular relevance to companies like Curium.

Curium, a leading global manufacturer and distributor of radiopharmaceutical products, stands to benefit greatly from graduates of the BME program at Missouri S&T. The biomanufacturing track will equip students with the knowledge and skills needed to optimize production processes and develop innovative solutions for the manufacturing of radiopharmaceuticals. Meanwhile, the biomaterials track will train students to create and test advanced materials for use in medical devices and drug delivery systems. As Curium continues to expand its operations, the availability of well-trained BME professionals will be crucial to our success.

Our North American Vice President of Research and Development holds a BS and a Master's Degree in Biomedical Engineering. She received both from Tulane University because they were not offered at UMR when she was looking for programs. The establishment of a BME program at Missouri S&T will address the increasing demand for biomedical engineers, many of whom desire to stay in the St. Louis area or Missouri after graduation. As the healthcare industry continues to grow, there will be a need for skilled professionals capable of developing and implementing innovative solutions to pressing medical challenges. Graduates of the proposed BME program will be well-prepared to meet this demand, contributing to the local economy and improving the quality of healthcare in the region.

I strongly support the development of a BME BS program at Missouri S&T, as it represents a great opportunity for the Doshi Department of Chemical and Biochemical Engineering and holds immense potential for the future of biomedical engineering in Missouri. By offering this program, Missouri S&T will not only contribute to the growth of local companies like Curium but also help to address the increasing demand for skilled biomedical engineers in the region and beyond.

Sincerely,  
**Bock, Sarah**  
Sarah Bock, PE  
Director Capital Engineering

 Digitally signed by Bock, Sarah  
Date: 2023.04.24 07:50:11 -05'00'





April 28, 2023

Dr. Hu Yang

Missouri University of Science and Technology

Linda and Bipin Doshi Department of Chemical and Biochemical Engineering

110 Bartelsmeyer Hall - 1101 N. State Street

Rolla, MO 65409-1230

RE: Support for a Biomedical Engineering BS degree program

Dear Dr. Yang,

The development of Biomedical Engineering (BME) Bachelor of Science (BS) program within the Doshi Department of Chemical and Biochemical Engineering at Missouri S&T is an exciting and transformative step towards advancing healthcare technology and research in St. Louis Metropolitan area and in the state of Missouri. This initiative will not only contribute to the local economy but also help create a thriving ecosystem of innovation and collaboration in the fields of biomedical engineering and healthcare.

CRB is the pre-eminent engineering and construction firm in the United States and Europe, executing thousands of projects in the biochemical and pharmaceutical industries for the last 40 years. Our team has received numerous industry awards and play a significant role in the communities of practice, writing engineering standards for the International Society of Pharmaceutical Engineers (ISPE). CRB has significant offices in St. Louis and Kansas City with more than 500 associates, further contributing to Missouri's economic needs.

The industry has been ever expanding beyond traditional pharmaceutical dosage forms and simple design and construction. We find ourselves working on projects with devices, organ repair, tissue harvest/generation, and prosthetics / implants. Clients are becoming less self-sufficient and have been asking firms like ours to provide product development services. In addition, personalized care is forcing the manufacturing capability closer to the treatment centers such as hospitals and outpatient services which is requiring a knowledge of upstream and downstream healthcare systems.

It will be critical that we have engineering resources that understand these aspects of "Devices" beyond dosage forms.

CRB fully supports and recommends that Missouri S&T offer these skills as an extension to the degree programs. The establishment of the BME BS program at Missouri S&T represents a pivotal milestone in fostering cutting-edge research and education, ultimately contributing to a healthier, more sustainable future for the people of Missouri and beyond. **We most certainly would consider the right candidates as additional team members to our staff and see a Bachelor of Science in Biomedical Engineering to be an asset.**

Kindest Regards,

**Clark, Richardson and Biskup Consulting Engineers, Inc.**

Ralph E. Grant | Director of Business Development - Associate

701 Emerson Road, Suite 500, St. Louis, MO 63141

[Ralph.grant@crbusa.com](mailto:Ralph.grant@crbusa.com)

c: 636-542-3622

April 21, 2023

Hu Yang, PhD  
Department Chair and Professor  
Doshi Department of Chemical and Biochemical Engineering  
Missouri University of Science and Technology, Rolla, MO 65401

Dear Dr. Yang,

As the CEO of DeNovix Inc. and a proud alumnus of Missouri S&T, I am writing to express my enthusiastic support for the development of a new Bachelor of Science in Biomedical Engineering (BME BS) program at the university. The establishment of such a program within the Doshi Department of Chemical and Biochemical Engineering would be a significant step towards meeting the increasing demand for skilled biomedical engineers in the job market.

Throughout my time at Missouri S&T and in the years since, I have maintained a strong connection with the university and its esteemed faculty. My experiences at S&T have undoubtedly played a pivotal role in my professional journey, and I am confident that the proposed BME BS program will provide future graduates with the same strong foundation for success in the biomedical engineering field.

The global job market for biomedical engineers has seen significant growth in recent years, driven by advancements in medical technology and the increasing need for innovative solutions in diagnostics, therapeutics, and preventative care. As the CEO of a company specializing in the development and manufacturing of life science instrumentation, I can attest to the importance of a well-rounded education in biomedical engineering for those entering the field.

The establishment of a BME BS program at Missouri S&T would not only help address the growing demand for qualified professionals in the industry but also strengthen the university's reputation as a leading institution in the field of engineering. As an alumnus and an industry leader, I am eager to see the university expand its offerings to better serve the needs of its students and the biomedical engineering community as a whole.

I am committed to supporting the new BME BS program at Missouri S&T in any way I can, such as offering internships and sharing my insights and experiences with students and faculty. I am confident that, with the proper support and resources, the proposed program will thrive and produce exceptional biomedical engineering professionals who will make a lasting impact on the field.

In conclusion, I enthusiastically endorse the development of a new BME BS program at Missouri S&T and look forward to the many opportunities and successes that will surely arise from this endeavor.

Sincerely,



Fred Kielhorn  
CEO, DeNovix Inc.

April 23, 2023

I am writing to express my enthusiastic support for the proposed new Biomedical Engineering BS program at Missouri University of Science and Technology, as presented by the Chemical and Biochemical Engineering department. Having spent much of my career in the pharmaceutical and medical device industry as a practicing chemical engineer, I am well acquainted with the needs of this field. I believe the proposed program has excellent alignment with the department's capabilities and the institution's vision.

Throughout my career, I have recruited and led teams of research and manufacturing professionals, with a focus on developing and commercializing new biomedical products. Although most of this work was completed by advanced research professionals in chemistry and biology, implementation and attaining commercial viability was often hindered by the lack of robust engineering development and translational engineering skills necessary to effectively transfer the product/process to commercial production. Challenges still exist in the areas of good medical device and drug design, understanding biocomplexity, and translating development concepts into practical, affordable products.

To overcome these challenges, the biomedical field needs specialized engineers. My chemical engineering background served me well, but I recognize the biomedical field has unmet needs that require more discipline-specific education. Over the years, I have had the opportunity to interact with and advise MS&T's Chemical and Biochemical Engineering department, and I am confident this proposed program is an excellent extension of the department's capabilities. The proposed Biomedical Engineering program combines the department's established chemical engineering fundamentals with a specialized curriculum to equip graduates with the skills needed to excel in multiple, new career fields, such as biomaterials, drug development and biomedical device design. In addition, this program will prepare students to solve the unique problems of managing research and production in the rapidly growing healthcare industry.

As Missouri's leader in STEM education, MS&T should continue to lead education and research in emerging engineering fields. Biomedical and related bioengineering fields play a critical role in developing solutions to some of society's most challenging problems. This proposal capitalizes on the outstanding reputation of the Chemical and Biochemical Engineering department, one of MS&T's engineering pillars, and leverages MS&T's immersive and inter-disciplinary educational style to fill a critical gap in these rapidly growing fields. I am excited, and honored, to offer my wholehearted support for this new undergraduate program.

Sincerely



Brian K. Donley, P.E.

## Background

Brian Donley is a recently retired 35-year professional, spending most of his career in the pharmaceutical and medical device industry. Mr. Donley has held multiple leadership positions in Tyco Healthcare/Covidien (now Medtronic), Mallinckrodt Pharmaceuticals, and Curium Pharmaceuticals. He has led drug/device regulatory compliance, new drug development and drug/device technical transfer teams. He has also led multiple continuous improvement (Six Sigma / Lean) deployments in the areas of drug/device development and manufacturing.

Mr. Donley has provided guidance to the Linda and Bipin Doshi Chemical and Biological Engineering Department for over 20 years. He has held positions in the department's Industrial Advisory Committee, previously serving as chair for 10 years. He is a member of MS&T's Academy of Chemical and Biological Engineers and the recipient of MS&T's Award of Professional Distinction (2016). He continues to collaborate with faculty, delivering lectures and presentations in the areas of process safety, experimental design, and engineering ethics.

Mr. Donley holds a BS in Chemical Engineering from MS&T (1987) and a Master of Business Administration from Washington University in St. Louis (2000). He is a Certified Six Sigma Master Black Belt and is a licensed professional engineer in Missouri and Illinois.



5900 Balcones Drive  
Suite 7824  
Austin, Texas 78731

Texas Registered Engineering Firm  
F-23940  
[www.biomedicaldynamics.com](http://www.biomedicaldynamics.com)

March 24, 2023

Hu Yang, Ph.D.  
Department Chair, Professor; Linda and Bipin Doshi Chair  
Linda and Bipin Doshi Department of Chemical and Biochemical Engineering  
Missouri University of Science and Technology  
110E Bertelsmeyer Hall, 1101 N. State St., Rolla, MO 65409

Dear Dr. Yang,

This letter is to express my enthusiastic support for the proposed biomedical engineering bachelor's degree program at the Missouri University of Science and Technology (Missouri S&T). As a member of the engineering and scientific community in the life sciences industry for more than 35 years, I am convinced that this program is essential to Missouri S&T and the community it serves.

I am also a firm believer that engineers must embrace and facilitate change. We must make every effort to comprehend the complexity and diversity of both inanimate and living systems. The objective of biomedical engineers should be to envision and ultimately create a better world for humanity by collaborating with specialists from as many fields as possible. Biomedical engineers will be able to bridge the domains of engineering and biology for both therapeutic and diagnostic medical applications if traditional engineering curricula are supplemented with significant education in and exposure to the life sciences and clinical applications.

Recently, prominent voices in engineering programs have demanded that engineers focus more on engineers than just on engineering. In other words, engineers must consider their profession's global, social, and human impact, as well as the effects of their work on other people, society, and history. In this regard, biomedical engineering occupies a unique position; while it is deeply rooted in scientific knowledge and its practical applications, it has also historically been concerned with the improvement of the human condition and the environment. For the continued success of biomedical engineering as a discipline, it is essential to include people with diverse backgrounds, perspectives, and experiences, and to provide them with equal opportunities to participate, be appreciated, and ultimately feel like they belong.

Biomedical engineering is a rapidly expanding field with immense potential for improving healthcare, advancing medical technologies, and enhancing the quality of life for millions of individuals. There is no nobler objective than the application of engineering principles to the design and development of medical devices, diagnostic tools, and therapeutic techniques that can save lives, reduce pain, and improve patient health outcomes.

Missouri S&T is in a strong position to offer a top-tier biomedical engineering program that can attract talented students, faculty, and researchers. The University has a track record of excellence in engineering and technology education, and your state-of-the-art facilities, cutting-edge research, and experienced

faculty will be unquestionably beneficial to the success of this program. The addition of a biomedical engineering program on campus will directly leverage the transformative gift that established the Kummer College and Institute and turbocharge its stated goals of driving innovation and entrepreneurship, fostering new areas of research, and serving as an economic engine – all through interdisciplinary teams.

The proposed program prospectus I reviewed meets the present and future needs of the healthcare industry in the United States and internationally. The demand for biomedical engineers is anticipated to increase substantially in the coming years, as the aging population, chronic diseases, and technological advancements continue to drive the expansion of the healthcare industry. By establishing this program, Missouri S&T can help meet this demand and prepare future generations of biomedical engineers to positively impact society.

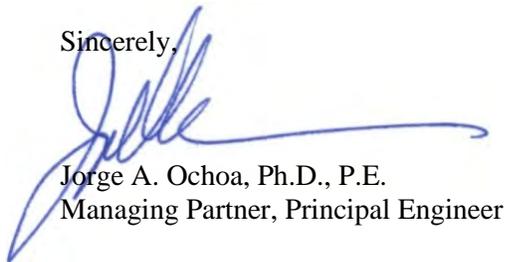
The interdisciplinarity of biomedical engineering makes it an ideal platform for collaboration between departments and with other institutions, fostering a culture of innovation and enhancing Missouri S&T's competitiveness in the global academic and research landscape. Further, Missouri S&T's central location in Rolla, Missouri, is ideal for interdisciplinary research and collaboration. The university's proximity to St. Louis, Kansas City, and other major metropolitan areas will allow students and faculty to collaborate with top hospitals, research institutions, and business partners.

Additionally, the success of the program will depend on ensuring that graduates have access to employment opportunities. Biomedical engineering offers numerous employment opportunities, and graduates with a solid foundation in the field are in high demand. I would consider hiring biomedical engineering graduates from Missouri S&T for my future endeavors and would recommend them to my network of industry partners and other employers looking to fill open positions.

As someone who cares deeply about the future of engineering and Missouri S&T both, I believe that establishing a biomedical engineering program has the potential to have a significant impact on healthcare and medical technology, and I am confident that Missouri S&T is the ideal environment to make this a reality. The proposed biomedical engineering program at Missouri S&T has the potential to have a positive impact on the quality of life of patients with debilitating conditions and diseases, as well as on the university's reputation and influence.

I appreciate your consideration and time. I remain available if you have any questions or concerns and anticipate the success and accomplishments that will result from this program. I look forward to meeting you in person on campus this April.

Sincerely,



Jorge A. Ochoa, Ph.D., P.E.  
Managing Partner, Principal Engineer



Faculty Name	Highest Degree Earned - Field, Year	Rank <sup>1</sup>	Type of Academic Appointment <sup>2</sup>	Full-Time (FT) or Part-Time (PT)	Years of Experience			Level of Activity		
					Govt/Ind Practice	Teaching	This Institute	Professional Organizations	Professional Development	Consultin/Summer Work in Industry
Al-Dahhan, Muthanna	DSci, ChE - Washington University, 1973	P	T	FT	5	30	15	M	H	H
Forciniti, Daniel	PhD, ChE - North Carolina State University, 1991	P	T	FT	1	32	32	L	L	L
Ludlow, Douglas	PhD, ChE - Arizona State University, 1986	P	T	FT	1	37	27	H	M	M
Luks, Christi	PhD, ChE - University of Tulsa, 1993	P	NTT	FT	1	39	9	H	H	L
Neogi, Parthasakha	PhD, ChE - Carnegie Mellon, 1979	P	T	FT	0	43	43	L	L	L
Okoronkwo, Monday	PhD, Chemistry - University of Aberdeen, 2014	AST	TT	FT	0	6	4	M	M	L
Rezaei, Fateme	PhD, ChE - Monash University, 2012	ASC	NTT	FT	2	12	9	L	L	L
Senter, Matthew	MS, ChE - Missouri University of Science and Technology, 2022	L	NTT	FT	0	1	1	L	L	L
Smith, Joseph	PhD, ChE - Brigham Young University, 1990	P	T	FT	6	27	11	H	L	L
Towler, Mark	PhD, BioMaterials - University of London, 1997	P	T	FT	2	24	1	L	M	H
Wang, Jee-Ching	PhD, ChE - Pennsylvania State University, 1998	ASC	T	FT	1	23	23	L	L	L
Yang, Hu	PhD, ChE - University of Akron, 2004	P	T	FT	0	18	3	M	L	L

<sup>1</sup> P = Professor, ASC = Associate Professor, AST = Assistant Professor, L = Lecturer

<sup>2</sup> T = Tenured, TT = Tenure-Track, NTT = Non-Tenure-Track

No. 4

Recommended Action – Resolution for Executive Session of the Board of Curators Academic, Student Affairs, Research and Economic Development Committee Meeting, September 7, 2023

It was moved by Curator \_\_\_\_\_ and seconded by Curator \_\_\_\_\_, that there shall be an executive session with a closed record and closed vote of the Board of Curators Academic, Student Affairs, Research and Economic Development Committee Meeting, September 7, 2023 for consideration of:

- **Section 610.021(1), RSMo**, relating to matters identified in that provision, which include legal actions, causes of action or litigation, and confidential or privileged communications with counsel; and
- **Section 610.021(3), RSMo**, relating to matters identified in that provision, which include hiring, firing, disciplining, or promoting of particular employees; and
- **Section 610.021 (13), RSMo**, relating to matters identified in that provision, which include individually identifiable personnel records, performance ratings, or records pertaining to employees or applicants for employment.

Roll call vote of the Committee: YES NO

Curator Blitz

Curator Graves

Curator Layman

Curator Sinquefield

The motion \_\_\_\_\_.

UNIVERSITY OF MISSOURI – KANSAS CITY  
CAMPUS HIGHLIGHTS – CHANCELLOR AGRAWAL

Materials for this information item will be  
posted prior to the meeting.

No. 1

Recommended Action - Resolution for Greg E. Hoberock

It was endorsed by President Choi, recommended by Chair Williams, moved by Curator \_\_\_\_\_ and seconded by Curator \_\_\_\_\_, that the following resolution recognizing the dedicated service of Greg E. Hoberock to the University be approved:

#### RESOLUTION

WHEREAS, Greg E. Hoberock served the people of Missouri with distinction as a member of the University of Missouri Board of Curators from February 12, 2020 until April 27, 2023; and

WHEREAS, during his term, he was a member of the Academic, Student Affairs, Research and Economic Development Committee, the Finance Committee, the Audit, Compliance and Ethics Committee, and the Executive Committee, and served as Chair of the Finance Committee from 2021-2022 and Chair of the Audit, Compliance and Ethics Committee in 2023; and

WHEREAS, Curator Hoberock was named Vice Chair of the Board on January 1, 2021 and served until December 31, 2022; and

WHEREAS, he advocated for administrative and financial efficiencies through innovative operational changes and eliminating undesired duplicative services or programs to achieve operational excellence in all areas of the University; and

WHEREAS, Curator Hoberock served as a member of the Administrative Cost Working Group during the COVID pandemic and looked at costs, auxiliary services and space plan; and

WHEREAS, he encouraged and challenged University leaders to think outside the box in strategic thinking and solving issues, and emphasized the importance of accountability; and

WHEREAS, Curator Hoberock, as an advocate for all Missouri students, faculty and staff, cared deeply about what was best for the University of Missouri, and acknowledged its role in the development of the entire State of Missouri; and

WHEREAS, he led the 2021 Board Retreat and encouraged thoughtful strategic discussion among Curators and University leaders; and

WHEREAS, Curator Hoberock is a true professional. His contributions will have a lasting influence on the future of the University of Missouri System and the State:

NOW, THEREFORE, BE IT RESOLVED, that the Board of Curators, on behalf of the students, faculty, staff and alumni of the University of Missouri System, and on behalf of the citizens of the State of Missouri, does hereby adopt this resolution in sincere appreciation of the dedicated and devoted leadership of Greg E. Hoberock;

AND ALSO, that his future relations with the University of Missouri System be formally recognized by bestowing the title of “Curator Emeritus” upon Greg E. Hoberock; and

BE IT FURTHER RESOLVED, that the Secretary of the Board of Curators cause this resolution to be spread upon the minutes of this meeting and that a duly inscribed copy thereof be furnished to Greg E. Hoberock.

Roll call vote:	YES	NO
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Curator Blitz

Curator Brncic

Curator Fry

Curator Graves

Curator Holloway

Curator Layman

Curator Sinquefield

Curator Wenneker

Curator Williams

The motion \_\_\_\_\_.

GOOD AND WELFARE  
OF THE BOARD

There are no materials for this information item.

No. 1

Recommended Action – Resolution for Executive Session of the Board of Curators Meeting September 7, 2023

It was moved by Curator \_\_\_\_\_ and seconded by Curator \_\_\_\_\_, that there shall be an executive session with a closed record and closed vote of the Board of Curators meeting September 7, 2023 for consideration of:

- **Section 610.021(1), RSMo**, relating to matters identified in that provision, which include legal actions, causes of action or litigation, and confidential or privileged communications with counsel; and
- **Section 610.021(2), RSMo**, relating to matters identified in that provision, which include leasing, purchase, or sale of real estate; and
- **Section 610.021(3), RSMo**, relating to matters identified in that provision, which include hiring, firing, disciplining, or promoting of particular employees; and
- **Section 610.021(12), RSMo**, relating to matters identified in that provision, which include sealed bids and related documents and sealed proposals and related documents or documents related to a negotiated contract; and
- **Section 610.021 (13), RSMo**, relating to matters identified in that provision, which include individually identifiable personnel records, performance ratings, or records pertaining to employees or applicants for employment.

Roll call vote of the Board: YES NO

Curator Blitz  
Curator Brncic  
Curator Fry  
Curator Graves  
Curator Holloway  
Curator Layman  
Curator Sinuefield  
Curator Wenneker  
Curator Williams

The motion \_\_\_\_\_.

September 7, 2023