Access, Affordability and Quality
UM

At the request of the University of Missouri Board of Curators and President Tim Wolfe, the University of Missouri Office of Finance, working with campus leaders, have compiled an in-depth analysis and relevant comparative data in advance of and to set the stage for a Curator and Leadership Development Session in September, 2015, titled, “How to balance access, affordability, and quality so as to achieve our strategic goals and fulfill our mission statement”.

Public universities cannot think about cost alone in a vacuum. Significantly moving cost requires making very difficult decisions, as most of the cost in a public university lies in the academic enterprise, which will be illustrated in the materials and data that follow. Although operating efficiencies can most certainly improve cost dynamics over time, significant operating and personnel budget cuts will have an impact on the organization’s value proposition, as demonstrated by the concept of the iron triangle.

The following materials focus on the challenges faced over the previous five years by higher education as an industry and explores those challenges both at the system and individual campus level. The materials begin with an introduction that defines the methodology for peer analysis and provides a high level overview of how Universities are funded. The introduction then moves into an examination of the significant changes in the economic environment for higher education at both the national and state level. Following the introduction, the analysis shifts to a deep dive into data related to quality, cost, and access for each campus and their peers. The final section provides background definitions of different tuition strategies and models currently utilized within higher education.

These materials provide context for the discussion at the September 8-9 development session, with only a small portion of time on the first day dedicated to where each campus has been over the previous five years. Although the past is informative, it will not change the direction for the institutions in the University of Missouri System. The majority of the time at the development session will be spent on each campus’ future vision, knowing the strategies that worked for the last five years will not move each institution to a great institution over the next five years.
## TABLE OF CONTENTS

**INTRODUCTION** .................................................................................................................. 3  
  System Peer Comparison ........................................................................................................ 3  
  The Iron Triangle .................................................................................................................. 8  
  Understanding the University’s Funding Sources ............................................................... 9  
  Shifting State Support for Public Institutions .................................................................. 14  
**SYSTEM-WIDE ANALYSIS AND BENCHMARKING** ............................................................. 24  
  Breakdown of Tuition .......................................................................................................... 24  
  Breakdown of Cost to Educate a Student ............................................................................ 28  
  Introduction to Statistical Modeling ..................................................................................... 35  
**MISSOURI UNIVERSITY OF SCIENCE AND TECHNOLOGY ANALYSIS AND**  
**BENCHMARKING** ............................................................................................................. 37  
  Peer Narrowing .................................................................................................................. 37  
  Breakdown of Tuition .......................................................................................................... 40  
  Breakdown of Cost to Educate a Student ............................................................................ 44  
**UNIVERSITY OF MISSOURI ST. LOUIS ANALYSIS AND BENCHMARKING** .... 52  
  Peer Narrowing .................................................................................................................. 52  
  Breakdown of Tuition .......................................................................................................... 55  
  Breakdown of Cost to Educate a Student ............................................................................ 59  
**UNIVERSITY OF MISSOURI KANSAS CITY ANALYSIS AND BENCHMARKING**  
................................................................................................................................. 68  
  Peer Narrowing .................................................................................................................. 68  
  Breakdown of Tuition .......................................................................................................... 71  
  Breakdown of Cost to Educate a Student ............................................................................ 76  
**UNIVERSITY OF MISSOURI COLUMBIA ANALYSIS AND BENCHMARKING** .. 84  
  Peer Narrowing .................................................................................................................. 84  
  Breakdown of Tuition .......................................................................................................... 87  
  Breakdown of Cost to Educate a Student ............................................................................ 91  
**POTENTIAL TUITION POLICY DIRECTIONS FOR THE FUTURE** ................. 99  
  Plateau Rate Tuition .......................................................................................................... 99  
  Differential Tuition ............................................................................................................ 100  
  Fixed Price Tuition ............................................................................................................ 101  
**REFERENCES** .................................................................................................................. 104
INTRODUCTION

The economic landscape of public higher education continues to evolve and face many challenges from the federal and state governments, alumni, parents, and communities; organizations and businesses served by the University’s graduates, research, and economic development programs. These challenges include increased expectations around degree attainment, college participation, tuition affordability, and the relevance of a college degree.

Just as businesses compete for customers and market share, public universities such as the University of Missouri increasingly must compete for students, faculty, research awards and philanthropic gifts with a number of like institutions in the Midwest and nationally. Just as private sector firms analyze the competitive landscape of the markets in which firms operate, it is rational and informative to analyze how the campuses and system of the University of Missouri are funded and compare to institutions that are economically and operationally structured in a similar fashion.

The results of these analyses are contained herein and provided to the Board of Curators, President, General Officers, and campus Provosts and Chief Financial Officers to assist in a thorough discussion about the economic dynamics and implications facing the system and campuses at the September development session. These analyses follow a consistent narrative with the same data points presented on a consolidated basis for the system and separately for each campus. Although the system-level data is informative, it is not actionable.

System Peer Comparison

The University of Missouri System (UM) and its four campuses have used peer comparative data for many items including salary setting and retention, benefits offered, and other key metrics that inform the market for public higher education. The System embarked in 2014 to identify systems in the Midwest similar to the University of Missouri System. Narrowing the universe of peer systems is important for several reasons including efficiency in making comparisons, finding a set of institutions that function in a system much like the University of Missouri System, and face many of the similar pressures and expectations for performance.

The overarching approach to finding a set of peer systems was to focus on the Midwest, rather than the coasts, include only flagship systems with multiple campuses, look for systems that award medical degrees and operate a health system; and a flagship campus had to be a member of the AAU, a land grant institution, or both. These criteria were established and verified by staff in institutional research and vetted with leaders in academic affairs, information technology, legal and human resources to ensure the criteria were justified. From this effort, the eight public higher education systems that most look like the University of Missouri System from these narrowing criteria include:

- University of Arkansas System
- University of Colorado System
- University of Illinois System
- University of Michigan System
- University of Minnesota System
- University of Nebraska System
- University of Tennessee System
- Texas A&M University System
The table that follows illustrates key data points and ranks of these systems in comparison to the University of Missouri System.

**UM-1**

**Key Data Points**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Illinois Board of Trustees</td>
<td>71,132</td>
<td>3,711,246,953</td>
<td>11,934</td>
<td>3</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Texas A&amp;M University System</td>
<td>113,343</td>
<td>3,010,734,651</td>
<td>20,014</td>
<td>1</td>
<td>790,652,281</td>
<td>4</td>
</tr>
<tr>
<td>University of Michigan</td>
<td>35,075</td>
<td>3,807,712,000</td>
<td>8,911</td>
<td>6</td>
<td>835,234,000</td>
<td>2</td>
</tr>
<tr>
<td>University of Minnesota</td>
<td>78,318</td>
<td>2,804,314,413</td>
<td>10,135</td>
<td>3</td>
<td>797,638,331</td>
<td>3</td>
</tr>
<tr>
<td>University of Colorado</td>
<td>23,149</td>
<td>2,059,767,789</td>
<td>9,032</td>
<td>5</td>
<td>598,182,738</td>
<td>7</td>
</tr>
<tr>
<td>The University of Tennessee - System</td>
<td>44,699</td>
<td>1,564,697,273</td>
<td>7,270</td>
<td>7</td>
<td>301,817,753</td>
<td>8</td>
</tr>
<tr>
<td>University of Oklahoma</td>
<td>49,488</td>
<td>1,529,204,389</td>
<td>9,242</td>
<td>9</td>
<td>285,534,368</td>
<td>6</td>
</tr>
<tr>
<td>University of Missouri - System</td>
<td>62,177</td>
<td>1,491,072,656</td>
<td>8</td>
<td>4</td>
<td>227,733,985</td>
<td>5</td>
</tr>
<tr>
<td>University of Nebraska</td>
<td>43,839</td>
<td>1,007,212,371</td>
<td>7,010</td>
<td>8</td>
<td>331,094,713</td>
<td>9</td>
</tr>
</tbody>
</table>

*Includes $758,137,724 endowment asset value from the University of Colorado Foundation's Disclosed Parented Component Unit. The majority of the resources, or income streams that the supporting organizations hold and invest, are restricted to the activities of the University by the donors.
The chart that follows graphically illustrates the scale of instruction and research expenditures for the University of Missouri System and its peers:

The scatterplot chart above demonstrates the growth of instructional costs (vertical axis) and research costs (horizontal axis) for 2008 to 2013. The point itself represents the ending point of 2013 with the line tracing the path over the previous five years. Note that institutions further up the scale generally grew more over the past five years. The analysis that follows will explore the trajectory of these cost points for the campuses within the System. This chart indicates the University of Missouri System has relatively low instruction and research costs compared to its peer systems.

In addition to cost, the System considered state support, tuition, and total enrollments in arriving at a peer set. The following chart illustrates the relationship between state support and tuition compared to total enrollment:
The scatterplot chart above demonstrates the relationship between enrollment (horizontal axis) and total state appropriations and net tuition (vertical axis). As with the previous chart, the point represents 2013 and the line represents a five year history. Compare this chart to the previous chart and notice the relationship between growing revenues on the current chart and the related growth in expenditures on the previous chart. Note that institutions moving up on the second chart by growing revenues without growing enrollment tended to grow research and thus moved to the right on the first chart. The analysis that follows will explore this movement and the relationship between the trajectories on these charts.

**Campus Peer Set Definition**

A defined peer set exists for each University of Missouri System campus. However, these peer sets contain more than twenty different institutions with diverse economics, financial position, and academic programs. Narrowing the existing universe of peer institutions for this analysis was important for several reasons, including efficiency in making comparisons and finding a set of institutions that face many of the similar pressures and
expectations for performance. The full and narrowed peer sets for each campus can be found as the first section in each campus’ analysis within this document.

The Division of Finance and Academic Affairs at University of Missouri System worked with each campus Chancellor, Provost, and CFO to narrow each campus’ peer set to a smaller subset of peers that better resemble the economics of each campus. To arrive at a narrow set of peers, the team utilized the similar criteria from the System peer definitions.

**The Iron Triangle**

Public universities cannot think about cost in a vacuum. Significantly moving cost requires very difficult decisions, as most of the cost in a public university lies in the academic enterprise, as illustrated in the materials that follow. Although operating efficiencies can improve cost dynamics over time, significant operating and personnel budget cuts will have an impact on the organization’s value proposition, as demonstrated by the concept of the iron triangle. The Board of Curators received a 2008 article about this concept in a pre-development session mailing in July.

According to the article, three primary factors drive the value of higher education:

![Factors have a reciprocal relationship. Changes in one factor will affect the others.](image)

Each of these factors is linked in an unbreakable reciprocal relationship, such that change in one will inevitably impact the others. According to most higher education professionals, to improve quality of a degree program, institutions must either invest in quality improvement or decrease the access to the program. Conversely, deep reductions in costs in higher education must eventually lead to downward adjustments in either quality or access or both. Simply, under this argument or theory, there is no “free lunch.”

Operating efficiencies represent a way to break through the “triangle” by decreasing cost while maintaining quality and access. However, public higher education continues to face revenue pressure from flat or declining state support per student and upward cost pressure from salary demands, eroding or delaying infrastructure and increased regulation. These cost pressures can easily outstrip the savings achieved from increased efficiency. Disruptive innovation has the potential to break the triangle over time, but the formation of that innovation will require financial investment on the part of higher education institutions and acceptance from students and, in many cases for traditional students, their parents.
The remainder of this analysis will explore this relationship at the University of Missouri System, including a “deep dive” for each campus within the System. The first half of this analysis will explore the level at which the System has been funded and performed over the past five years, with a complete benchmarking against the peer set. The conclusion will explore a vision for each campus over the coming years and where each fits in context of the System and Missouri’s system of public higher education.

Understanding the University’s Funding Sources

The University Funding Tree

The diagram that follows depicts the relationship between the University’s primary funding sources and the entire scope of the University’s operations.

Tuition and state support form the roots of the funding tree and represent over 85% of unrestricted revenues for the University, providing the base for all other operations at the institution. The trunk of the funding tree represents the core operation of the University, including educating students, providing public service, and supporting activities necessary to keep the institution running. The trunk supports the branches and leaves of the
University’s operation, which include funded activities that relate to or support the University’s overall mission. These activities may provide funding and contribute to the core operation, such as health care, residential life, and parking; or, the activities may represent a partially funded operation that aligns with the University’s core mission, but needs a subsidy to continue, such as general revenue research grants. Essentially, without the “main trunk” of the funding tree, there would be no ability to support the self-funded operations, gather philanthropic support or accept extramural research awards, the vast majority of which is designated for specific purposes.

The Colors of Money

Another way of thinking about the “funding tree” is in a graphic format. The diagram below shows how the various types of funding work together to benefit the University. This graphic depicts the flow of the different types of funding sources for the University, color coded similar to a stoplight to represent the level of spending restriction on the funding source:

The operations fund, shown in green, is where the bulk of the University’s teaching, research, and supporting service activities occur. Its primary funding sources are tuition, fees, and state appropriations, although it does receive some support from unrestricted auxiliary and other enterprise “like” operations in the form of overhead payments for services provided by the operations fund (such as accounting, procurement, legal, grant management, facilities, etc.). In addition, the operations fund receives facilities and administrative cost recovery funding from grants and contracts to partially offset the costs of providing space and support services (overhead). Operations fund revenues are the least...
constrained by third parties and hence the most valuable. Operations fund revenues contribute 41% of total current fund revenues.

Other unrestricted funds are illustrated in yellow on the chart. The primary source of funding for this group is fees for services provided. These operations are treated as separate “business type” enterprises and are expected to set fees for services to cover current operating costs plus depreciation, which is set aside for future capital and equipment replacement. Included in this category are student auxiliaries (housing, dining, bookstores, and recreation centers), intercollegiate athletics, student unions, MU Health Care, the MURR research reactor, service operations (energy management, facilities design and construction, telecommunications, etc.), continuing education and self-insurance funds. These activities comprise 50% of the current fund budget.

Third parties, primarily donors and granting agencies, restrict the remainder of the current funds. These funds are shown in red on the chart because there is very little flexibility in how the funds are spent. The primary funding sources are gifts, spendable distributions from the endowment funds, and external grants and contracts. Grants and contracts are primarily for specific research, although some grants and contracts fund public service and instructional activities. This fund is also where federal financial aid is budgeted and accounted for due to the restricted nature of these federal funds.

### UM-4

**FY2014 Revenue Sources by Type**

<table>
<thead>
<tr>
<th>Source</th>
<th>Revenue ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales &amp; Services Income</td>
<td>$42M</td>
</tr>
<tr>
<td>Tuition &amp; Fees Less Allowance</td>
<td>$20M</td>
</tr>
<tr>
<td>State Appropriations</td>
<td>$14M</td>
</tr>
<tr>
<td>Grants and Contracts</td>
<td>$12M</td>
</tr>
<tr>
<td>Other Income</td>
<td>$2M</td>
</tr>
<tr>
<td>Endowment &amp; Investment Income</td>
<td>$2M</td>
</tr>
<tr>
<td>Gift Revenue</td>
<td>$2M</td>
</tr>
<tr>
<td>F&amp;A Recovery</td>
<td>$2M</td>
</tr>
</tbody>
</table>

**Sales and Service Income**, including MU Health Care, are generated by self-supporting operations that generally run on a break even or better basis. Although a few generate a “profit” or net revenue, auxiliaries typically do not generate significant funds to reinvest in core campus operations.
Tuition and State Appropriations are the “lifeblood” of an academic institution, as these are the revenue sources that support the core mission of education, public service, research and economic development. At the University of Missouri System, these sources represent roughly 35% of the University’s revenue for FY2014.

Grants & Contracts are generally accepted and undertaken on a cost-reimbursement basis. Across the higher education industry, research costs are generally higher than the revenue generated. At the University of Missouri System, on average, research costs about $1.24 for every dollar of research revenue generated. The balance has to come from another area of the “funding tree.” That source is generally tuition or state appropriations, as the other portions of the University’s revenue are generally offset with breakeven expenses. There is a tremendous economic development, competitive and intellectual development aspect to bringing extramural research awards to the campuses of the University of Missouri System. Nearly all of the grants awarded to the University involve the addition of grant-funded positions for employees and students to conduct the research in conjunction with a faculty member, commonly referred to as a principal investigator (PI). Principal investigators that can attract substantial extramural research awards generate jobs and income in the Missouri economy which assists in the Gross Domestic Product (GDP) and competitive environment of the state.

Other Income Sources represent the remaining revenues acquired by the University. These sources include gifts and endowment income, royalties, investment income, and other miscellaneous sources. While the amount of these sources varies by campus, of these sources, only 25% represent unrestricted income available for supporting the University’s core mission.

The University of Missouri System remains focused on growing unrestricted revenue sources outside of tuition and state appropriations. However, these sources are small in comparison to tuition and state appropriations. For instance, growing other revenue sources by 10% would generate an amount equal to a 1% increase in tuition and fees. In addition, it will take a significant amount of time for alternate revenue sources to become a large part of the University’s operating budget. It is very difficult to generate additional revenue from external sources such as philanthropists, alumni, or others without restrictions or specific designations on its use. Additionally, many of these alternative sources are tied to the University’s Research and Economic Development missions, which, as will be shown later, have not grown at the rate of other competing institutions.
Uses by Type

The following graphic breaks down spend by type of funding restriction for Operations, Auxiliary/Health Operations (includes Other Unrestricted Operations), Grants & Contracts, and Gifts:

UM-5
FY2014 Current Funds Use Type

The above pie charts demonstrate that for the University’s core operation, most of the money is spent on people. It is important to note compensation on Grants & Contracts would otherwise be funded by operations. The compensation piece of the gift funds generally pays for endowed faculty chairs, providing the University with the opportunity to pursue higher paid faculty. Combining this expenditure breakdown with the previous revenue graphic, it is very important to note tuition and state appropriations largely go towards the University’s human capital. If tuition or state appropriations are significantly cut, the University’s only realistic options to balance the budget involve decisions on staffing.

September 8-9, 2015
Conversely, the majority non-compensation expenses fall into self-funded operations. As the University has pursued several procurement initiatives over the past decade with significant success, much of these savings have been allocated to the self-funded operations.

**Shifting State Support for Public Institutions**

**National Environment**

At the turn of the new millennium, the US had just experienced a decade of strong growth in the economy and real wages. The baby boomers were in peak earning years and provided a strong tax base for federal and state governments. Because of these factors, states were able to hold appropriations constant per full time equivalent (FTE) student in real dollars (meaning states were able to maintain per-FTE student funding even as enrollment grew and kept up with inflation) throughout the 1990s.

Throughout the 2000’s, the US experienced two significant market crashes, with the second accompanied by a financial crisis not seen since the Great Depression. At the state level, these economic events had a large impact on budgets. During recessions, income tax revenues drop while outlays for social safety net programs increase, leaving other programs up for cuts. When looking at the key program areas that state budgets fund, higher education is one area that has been adjusted significantly in both good and bad economic times across the US. When state budgets are financially challenged, many, if not most states, consider reducing state support for public higher education as one way to balance state budgets. Many states, including Missouri, have balanced budget requirements either in statute or enshrined in a state Constitution.

This funding phenomenon occurs because unlike other key programs in the state budget such as K-12, Medicaid, social programs, and other areas, higher education typically has no “maintenance of effort” or mandated funding requirements. Many of these social programs are particularly challenged in an economic downturn when additional citizens requiring assistance add to the budgeted needs of these programs. Another key issue for public higher education is that policymakers understand higher education has other funding sources it can tap into to offset the loss of state support, e.g. tuition from students. It has also been observed and documented many states work to help public higher education recover financially when state budgets recover and begin to stabilize and grow. Thus, the variability in state support can vary widely over a short time horizon. This pattern increases the volatility of public support for higher education more than other key program areas of a state budget. This volatility is increasingly difficult to effectively plan for and requires a longer term view of investments and programs to ensure sustainability.
The chart below demonstrates the relative contributions per student of state support and tuition for all public higher education institutions in the U.S. from 1989 to 2014:
State of Missouri

Over the past five years, Missouri, along with most states across the country, reduced funding to higher education to meet funding shortfalls due to tax revenue declines. Across the country, public institutions raised tuition to meet appropriation funding shortfalls, increasing tuition by 29% in real dollars from 2008 to 2014. However, in Missouri, this increase was only 10% in real dollars from 2008 to 2014.

Additionally, on a per student basis, institutions in the State of Missouri have held costs per student flat since 2009. On a national level, public institutions increased costs per student from 2012 to 2014. For FY2014, institutions in Missouri had a total cost of $10,839 per student, 12% lower than the national average. Since 2009, Missouri has remained below the national average on cost to educate students.
UM-8 and UM-9

The Relationship between Tuition and State Appropriations

The charts above demonstrate the relationship between state appropriations and tuition on a per student basis. For the Missouri lines, note that from 1989 to 2008, when state support increases, tuition generally decreases. Conversely, when state support declines, tuition
generally increases. Also note when Missouri institutions are above average in one area, the same institutions tend to be below average in the other. Overall, this movement is largely a function of institutions balancing budgets on a per student basis.

However, this pattern has changed over the last six years with the enactment of Senate Bill 389, generally limiting Missouri public institutions to in-state tuition increases equal to the rate of inflation. Since 2008, Missouri public institutions absorbed a $2,000 per FTE student decrease in state support, compared to a national average decrease of $1,500. To offset the decrease, Missouri public institutions increased tuition by $500 as compared to a national average increase of $1,300. In total, Missouri public institutions absorbed a 12% decrease in real dollars per student as compared to the national average decrease of 2%. As demonstrated in later sections of this document, these cost cuts came with real consequences for the University of Missouri System.

**Missouri Families now Bear Majority of College Costs**

Historically, the State of Missouri paid the majority of higher education expenses for Missouri families. However, with recent cuts in state support, Missouri families are now paying a greater share of higher education expenses. This trend reflects the national trend of shifting the burden of paying for higher education from taxpayers to individuals. As the cost has shifted to individuals in public higher education, reliance on tuition has increased.
The chart above depicts the same view for the University of Missouri System. Whereas on average, public universities crossed over in 2013 with tuition exceeding state support, the University of Missouri System crossed over two years earlier in 2011.

**State Support in Relation to Enrollment**

As state appropriations largely fund the University’s academic activities, appropriations need to be taken in context with the level of enrollment. As public institutions grow enrollment, state appropriations per student drop while the base of students the appropriations support grows. If the institution holds tuition constant, on a per student basis revenues drop.

As University of Missouri System institutions accounted for the majority of FTE enrollment growth at the State’s public institutions and did not receive a corresponding increase in state appropriations, the System’s institutions were disproportionately impacted by the state appropriation cuts and Senate Bill 389. The chart on the next page demonstrates the impact of relatively flat state appropriations as compared to both headcount growth and inflation over the same timeframe.
Since 2008, the University of Missouri System absorbed a 29% decrease in state appropriations per FTE student in inflation-adjusted dollars. For the comparison, headcount and CPI together show the state appropriations necessary to keep the University whole for both the loss of purchasing power due to inflation and the higher level of enrollment leading to losses on a per student basis. Without the ability to offset the decreases with a corresponding increase in tuition, the University was forced to make significant cuts to its operation.
State Budgetary Impact on Higher Education

In 2013, higher education spending represented the third largest component of state budgets at the national level, but continues to shrink as spending on other program areas, specifically Medicaid, continues to increase. State spending on higher education has not kept pace with inflation, tends to be more volatile than other areas, and is projected to decline over the coming decade.

UM-13

Source: NASBO 2012 Report on Higher Education
Per-Student Revenues Decline

The chart below shows total state appropriations and net tuition and fees per FTE student since FY2001. State appropriations per FTE student have declined while net tuition and fees per FTE student have increased. However, in nominal terms the University is basically receiving the same amount of revenue on a per student basis as it did in FY2001. Adjusted for inflation, the combined total funding per FTE student has actually fallen 21% per FTE student, as compared to FY2001. University cost management and efficiency efforts have helped to bridge this gap.

[Graph showing Operational State Appropriations plus Net Tuition & Fees per FTE Student]
Reduction in Operating Expenditures per Degree Awarded

To balance the budget, the University contained cost, as evidenced by the decline in operating expenses per degree awarded. In real terms, the operating expense per degree has declined by almost $14,000 since FY2001. This represents a 17% reduction in cost per degree. The cost per degree for FY2014 was still below the peak of FY2009.

Additionally, the chart demonstrates the University has steadily increased the number of degrees awarded from about 11,000 in FY2001 to over 17,000 in FY2014, while holding the cost per degree essentially flat since FY2008 in nominal terms.
SYSTEM-WIDE ANALYSIS AND BENCHMARKING

Breakdown of Tuition

UM-16
Tuition & Fee History

Tuition and fees net of scholarship allowances is a core revenue source for the University of Missouri System. Tuition and fees (gross) are reduced by scholarship allowances, or student aid funded by unrestricted university operation funds, resulting in net tuition and fee revenue. In FY2008 net tuition and fees represented approximately 40% of the University’s operations fund revenue; by FY2014 that number had grown to nearly 50%.

Tuition, which is primarily assessed to students on a per credit hour basis, is by far the largest revenue contributor equaling 90% and 88% of tuition and fee revenue in FY2008 and FY2014 respectively. Supplemental fees are assessed for individual courses and are used to partially offset the additional cost of providing high cost instructional programs and or courses. Supplemental fees contributed 4% and 6% of tuition and fees for FY2008 and FY2014 respectively. Other miscellaneous fees, which contribute 2% of the total, include student finance charges, late payment fees, continuing education, and other fees.

Activity, facility, and health service fees, typically referred to as activity and facility fees, fund activities that enhance the student university experience and are often initiated by the students themselves. These fees are used to fund such things as student organizations, student recreational facilities, student unions, student transportation, and student health
services. Activity and facility fees are assessed to all on-campus students. Activity and facility fees contribute only 1% of total tuition and fee revenue.

Information Technology (IT) fees support the campus information technology infrastructure, student computer laboratories, and other student computing support. IT fees are assessed to all students and contribute 3% of tuition and fees. IT fees and activity and facility fees are considered required fees and along with tuition are governed by SB389 for resident undergraduate students, unless the fees are student approved.

**UM-17**

**Tuition Detail by Student Type**

The previous page discussed net tuition and fee revenue by the type of fee. The above pie charts focus on student level and residency in relation to FY2014 gross tuition and fees and enrollment. The chart on the left shows undergraduate FTE students contribute 70% of student revenue at the University of Missouri System.

The chart on the right shows the FTE students segmented by student level and residency. Eighty percent of the students at the University of Missouri System in FY2014 were undergraduates.

Missouri resident undergraduate students make up 61% of the FTE student population and contribute 42% of the tuition and fees. This is the student group governed by SB389. Conversely nonresident undergraduate FTE students make up only 19% of the student population and contribute 28% of the tuition and fee revenue.

Graduate FTE students make up 15% of the student population and contribute 18% of the gross tuition and fee revenue. Professional school FTE students make up the remaining 5% of the student population and contribute 12% of the gross tuition and fee revenue.
Metro FTE students, nonresident students who qualify for metro tuition rates at UMKC and UMSL, make up 3% of the student population and contribute 3% of gross tuition and fees.

**UM-18**

**State Appropriations plus Net Tuition & Fees per Student Compared to Peers**

The chart above shows total state appropriations and net tuition and fees per full-time equivalent (FTE) student in FY2013 versus the system peer set. The University of Missouri System ranks seventh out of the nine system peers in total state appropriations and net tuition funding per FTE. Net tuition per FTE makes up 60% of the total which is slightly higher than the peer average of 57%. State appropriations make up 40% while the University’s peer average is 43%.
The chart above shows revenue per FTE student for the University of Missouri System compared to the System peers from FY2008 to FY2013, the most recent peer data available. The peer average data is represented by the gray line and the University of Missouri System data by the purple line. As illustrated by the chart, revenue per FTE student of System peers was about $3,000 per FTE student higher than University of Missouri System in FY2008 and has increased by $1,000 to almost $20,000 per FTE student. At the University of Missouri System, funding per FTE student has declined over this same time period and is currently about $16,000, resulting in a difference of $4,000 per FTE student.
Breakdown of Cost to Educate a Student

Definitions of Expenditure Types

The analysis that follows provides detail of expenditures by their functional classification as defined by the National Association of College and University Business Officers. The definitions of the functional classifications follow:

Primary Programs:

- **Instruction** is a functional expense comprised of expenses generated from the colleges, schools, departments and other instructional divisions of the institution for general academic instruction, occupational and vocational instruction, community education, preparatory and adult basic education, and regular, special and extension sessions. Both credit and non-credit activities are included. Academic administration expenses are excluded when the primary function is administration.

- **Research** is a functional expense that includes expenses for activities specially organized to produce research outcomes and is commissioned by an agency that is either external to the institution or is separately budgeted by an organizational unit within the institution. Expenses generated by institutes and research centers, and individuals and project research are included in the category, except non-research sponsored programs (i.e. training programs) are not included.

- **Public Service** is a functional expense that includes expenses for activities established primarily to provide non-instructional services beneficial to individuals and groups external to the institution such as, conferences, institutes, general advisory service, reference bureaus, and similar services provided to the community. Also included are community services, cooperative extension services, and public broadcasting services.

Support Programs:

- **Institutional Support** is a functional expense comprised of expenses for the day-to-day operational support for the institution. Included are expenses related to general administrative services, central executive-level activities concerned with management and long range planning, legal and fiscal operations, space management, employee personnel and records, logistical services (i.e. purchasing and printing), public relations, and development expenses.

- **Student Services Support** is a functional expense that includes expenses for administration, registration activities, and other activities purposed to contribute to student emotional and physical well-being and/or intellectual, cultural, and social development outside the context of a formal instructional program. Some examples include: student activities, cultural events, student newspapers, intramural athletics,
student organizations, supplemental instruction outside the normal administration, and student records.

- **Academic Support** is a functional expense that includes expenses related to activities and services that support the institution’s primary missions of instruction, research, and public service. Included is the retention, preservation, and display of educational materials (i.e. libraries, museums, and galleries); organized activities that provide support services to the academic functions of the institution; media, such as audiovisual services; academic administration (including academic deans but not department chairpersons); and formally organized and separately budgeted academic personnel development, and course and curriculum development expenses.
The chart above illustrates the University of Missouri System’s growth rates in both enrollment and total costs compared to its peers. The University has continued to gradually increase its enrollment year over year with corresponding increases in cost. Over a base year of 2008, the University has grown nominal costs and enrollments at a relatively equal pace. This means in nominal dollars, the amount spent per student has not changed over the past five years.

However, the same cannot be said for the University of Missouri System’s peer set. Whereas the average peer system grew enrollment by 10% over 2008, these peers grew total cost by nearly 40% over the same timeframe, significantly increasing the cost per student. This trend demonstrates the University of Missouri System has responsibly managed cost while growing enrollment, whereas peer institutions grew cost at a rate far exceeding enrollment growth. While the nominal cost growth has been a net positive for the University’s students, there have been unintended impacts on other areas of the organization.
Primary program costs include instruction, research, and public service expenses (see definition above). These types of expenses are largely related to academic programming and are generally the non-administrative costs borne at individual colleges throughout a university. The average peer spends approximately $27,492 per student in primary program costs, whereas the University spends roughly $17,515 per student. The University expends 37% less via primary programs per student than its peers.

Support costs include institutional, academic, and student support expenses. These costs are generally the more centralized costs at a university, though academic support costs include those of deans and administrative functions at the college level. The University’s peers spend roughly $10,445 per FTE student, while the University spends approximately $6,466 per FTE student. Therefore, the University expends 39% less than its peers in support costs per FTE student.

Overall, the University spends less per FTE student compared to the average amount spent by its peers for both primary and support costs. The following charts will break down the variances by the different areas of spend for each of these two major functions.
As shown in the breakdown of support costs above, the University of Missouri System spends $2,057 less per student in academic support costs than its peers. Operationally, this means the University spends less per FTE student on deans and support staff than its system peers. The 46% difference is the leading contributor to the overall difference in support costs per FTE student.

The University also spends 37% less than its peers in institutional support costs. Institutional support costs represent true centralized administration and include executives as well as Finance, HR, IT, marketing, and development. University of Missouri System has created a thinner overhead structure in these areas as compared to peers and should continue to maintain this structure going forward. The savings in these areas allows the University to focus expenditures on areas that benefit students.

The University spends $412 or 23% less than peer institutions in student services per FTE student.
For primary program costs, the University of Missouri System expends roughly 25% less than its peers in instruction and public service costs per FTE student. The significant driver in the expenditures per student lies with the amount of research dollars spent. The University spent only $3,662 while its peers spent $9,608 on research per FTE student. The 62% difference is the most significant contributor to the overall difference spent in primary program costs. As shown on the following page, this gap in research expenditures has only widened over the previous five years.
The University of Missouri System did not grow research at the same rate as peers. As the chart above demonstrates, as peer systems grew research by nearly 40% over 2008, the University remained flat. Compared to its peers, in 2013, there was a $359,461,291 difference in research spend, which is approximately 61% lower.

It is important to note the amount of research is measured by dollars expended for benchmarking purposes. Most research grants are paid on a cost reimbursement basis, so grants are at best a break-even proposition. However, the method for calculating the reimbursement of overhead is highly restricted and capped in certain areas by federal regulations. As such, research must be subsidized by other sources. Based on the most recent cost study, the University spends $1.24 for every dollar of research revenue received. These 24 cents have to come from somewhere, and at public universities, it is largely from tuition and state support.
Introduction to Statistical Modeling

The following analysis will draw correlations between different areas of the University’s operation as compared to peers using scatterplots. Each correlation will show one variable on a vertical axis and another on a horizontal axis, with a point representing both values for each institution in the peer set. The line on each scatterplot represents the line of best fit for all of the points on the chart. The line represents the observed relationship, or correlation, between the variables for the points on the chart.

The analysis will also provide a p-value for several of the scatterplots presented. The p-value represents the probability the observed correlation in the scatterplot is false. Thus, a lower p-value implies a stronger probability the relationship between variables is accurate. Generally, a p-value less than 0.05 implies a significant relationship.

UM-25
Relationship between Tuition, State Support, and Research

The above chart illustrates the positive correlation between research funding per student (vertical axis) and tuition and fees plus state appropriations per student (horizontal axis) for system peer institutions in FY2013. The chart shows the inherent relationship between unrestricted funding (tuition and state appropriations) and the amount of research an institution is able to generate.

The line on the chart represents a line of best fit for the different points on the chart, noting the positive correlation between tuition and state support per student FTE and research per
student FTE. For the system set of peers, this correlation analysis has a p-value of 0.015. A smaller p-value indicates the relationship between state appropriations and tuition per student has a significant positive relationship with research expenditures per student. Thus, institutions which have greater state appropriations plus net tuition per FTE student tend to have more research expenditures per FTE student. Given the subsidized nature of research, institutions that receive smaller amounts of state support and tuition will have difficulty growing research expenditures.

As a whole, the public higher education institutions, especially flagships, faced the same market pressure from a reduction in state appropriations as the University of Missouri System. Across the nation, university systems tended to increase tuition to fund the gap created by decreased state support. Raising tuition per student to offset decreases in state support per student allowed institutions to maintain a portion of the internal margins necessary to grow research.
MISSOURI UNIVERSITY OF SCIENCE AND TECHNOLOGY ANALYSIS AND BENCHMARKING

Peer Narrowing

Peer Comparison Definitions

Missouri University of Science and Technology (Missouri S&T) peer group was originally developed by John Minter & Associates in 2005. Since the initial study, the campus has performed several reviews to edit the peer set based on changes among the peers, with the most recent review in 2013. The current peer set contains 15 campuses largely focused on sciences and technology, with a mix of public and private institutions. Narrowing the universe of peer institutions for this analysis is important for several reasons including efficiency in making comparisons, finding a set of institutions that function under a funding model similar University of Missouri System institutions, and finding a set of institutions that face many of the similar pressures and expectations for performance.

The Division of Finance and Academic Affairs at University of Missouri System worked with the Chancellor, Provost, and CFO to narrow Missouri S&T’s peer set to a smaller subset of peers that better resemble the economics of the campus. To arrive at a narrow set of peers, the team utilized similar criteria from the System peer definitions.
The scatterplot above demonstrates the relationship between an institution’s spend on instruction and the size of its spend on research for Missouri S&T’s peer set.
The scatterplot above demonstrates the relationship between an institution’s student-related revenue (tuition and state appropriations) and that institution’s enrollment for Missouri S&T’s peer set. Institutions falling above the line tend to be better resourced per student with the converse being true for institutions falling below the line. Missouri S&T’s peers have been both color and shape coded for the type of institution: public or private.

For the purposes of the following analysis, the peer set was narrowed to exclude the private institutions in Missouri S&T’s peer group. Private institutions generally have a different resource base and tuition model than public institutions. Without state support, private institutions tend to charge a higher tuition rate. In the analysis that follows, which includes benchmarking of tuition per student, private institutions would skew the results towards a higher tuition, thus, private institutions are excluded. For the purposes of this analysis, Missouri S&T’s peer set has been narrowed to:

- The Colorado School of Mines
- Michigan Technological Institute
- New Jersey Institute of Technology
The following table demonstrates the size of Missouri S&T as compared to the average for narrowed peers:

<table>
<thead>
<tr>
<th>S&amp;T-3</th>
<th>Average Full-Time Equivalent 2013</th>
<th>Average Educational Costs FY 2013</th>
<th>Average Students Receiving a Bachelor's Degree 2013-2014</th>
<th>Average Research Expenditures FY 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Missouri University of Science and Technology</td>
<td>7,221</td>
<td>153,375,905</td>
<td>1,026</td>
<td>27,806,154</td>
</tr>
<tr>
<td>Fees</td>
<td>7,146</td>
<td>316,488,320</td>
<td>1,089</td>
<td>153,177,914</td>
</tr>
</tbody>
</table>

NOTE: Missouri S&T’s private peers are not presented for comparison purposes as they follow a different set of accounting standards.

Breakdown of Tuition

S&T-4

Tuition & Fee History

Tuition and fees net of scholarship allowances is a core revenue source for Missouri S&T. Tuition and fees are primarily recorded in the operations fund. Tuition and fees (gross) are reduced by scholarship allowances, or student aid funded by unrestricted university operation funds, resulting in net tuition and fee revenue. Net tuition and fees is the largest source of funding for the University operations fund budget. In FY2008 net tuition and fees represented approximately 41% of the University’s operations fund revenue; by FY2014 that number had grown to roughly 54%.
Tuition, which is primarily assessed to students on a per credit hour basis, is by far the largest revenue contributor equaling 83% and 82% of tuition and fee revenue in FY2008 and FY2014 respectively.

Activity, facility, and health service fees, typically referred to as activity and facility fees, fund activities that enhance the student university experience and are often initiated by the students themselves. These fees are used to fund such things as student organizations, student recreational facilities, student unions, student transportation, and student health services. Activity and facility fees are assessed to all on-campus students. Activity and facility fees contribute only 4% of total tuition and fee revenue.

Information Technology (IT) fees support the campus information technology infrastructure, student computer laboratories, and other student computing support. IT fees are assessed to all students and contributed 3% for FY2008 and 2% for FY2014 of tuition and fees. IT fees and activity and facility fees are considered required fees and along with tuition are governed by SB389 for resident undergraduate students.

Supplemental fees are assessed for individual courses and are used to partially offset the additional cost of providing high cost instructional programs and or courses. Supplemental fees contributed 8% and 10% of tuition and fees for FY2008 and FY2014 respectively. Other miscellaneous fees, which contribute 2% of the total, include student finance charges, late payment fees, continuing education, and other fees.

S&T-5
Tuition Detail by Student Type

The previous charts showed net tuition and fee revenue by the type of fee. The above pie charts focus on student level and residency in relation to FY2014 gross tuition and fees and enrollment. The chart on the left shows undergraduate students contribute 76% of student revenue at the Missouri S&T.
The chart on the right shows the full time equivalent (FTE) students broken by student level and residency. 82% of the students at the Missouri S&T in FY2014 were undergraduates.

Missouri resident undergraduate students make up 65% of the student population and contribute 45% of the tuition and fees. This is the student group governed by SB389. Conversely nonresident undergraduate students make up only 17% of the student population and contribute 31% of the tuition and fee revenue.

Graduate students make up 18% of the student population and contribute 24% of the gross tuition and fee revenue.

S&T-6

State Appropriations plus Net Tuition & Fees Compared to Narrowed Peers per FTE

The chart above shows total state appropriations and net tuition and fees per full-time equivalent (FTE) student in FY2013 versus the system peer set. Missouri S&T ranks seventh out of its ten peers in total state appropriations and net tuition funding per FTE. Net tuition per FTE makes up 60% of the total which is slightly higher than the peer average of 55%. State appropriations make up 40% while Missouri S&T’s peer average is 45%.
The chart above shows fall of 2010 and 2014 undergraduate in-state tuition and fee rates per semester. In 2010 Missouri S&T ranked fifth out of eight amongst its peers in cost of tuition and fees. In FY2014 Missouri S&T ranked sixth; $1,397 below the peer average. From FY2010 to FY2014 Missouri S&T’s peers increased tuition by 23% compared to Missouri S&T’s 12%.
Breakdown of Cost to Educate a Student

S&T-8

Enrollment Growth to Cost Growth

The chart above illustrates the Missouri S&T total growth in enrollment and total costs compared to its peers. Missouri S&T has continued to increase its enrollment each year, with the highest total growth in FTE enrollment of any institution in the System. At the same time, unlike other University of Missouri System campuses, Missouri S&T held cost growth below growth in enrollment every year since 2008. In nominal dollars, Missouri S&T has been able to decrease the total cost per student over the past five years.

Missouri S&T’s peers had a significantly higher increase in total costs, while total enrollment growth was only roughly 10% over a base year of 2008. The trend over time indicates Missouri S&T is spending significantly less than its peers while continuing to grow enrollment. While this slower cost growth has been a net positive for the University’s students, there have been some unintended impacts to other areas of the operation.
Primary program costs include instruction, research, and public service expenses. These types of expenses are largely related to academic programming and are generally the non-administrative costs borne at individual colleges throughout a university. The average peer spends approximately $35,670 per student in primary program costs, while Missouri S&T spends roughly $16,469 per student. Thus, Missouri S&T expends 54% less in primary programs per student than its peers.

Support costs include institutional, academic, and student services support expenses. These costs are generally the more centralized costs at a university, though academic support costs include those of deans and administrative functions at the college level. Missouri S&T’s peers spend roughly $8,617 per student, while Missouri S&T spends approximately $4,771 per student. Therefore, Missouri S&T spends 45% less than its peers in support costs per student.

Overall, Missouri S&T spends significantly less per student compared to the average amount spent by its peers for both primary and support costs. The following charts will break down the variances by the different areas of spend for each of these two major functions.
## Breakdown of Support Costs

<table>
<thead>
<tr>
<th>Category</th>
<th>Missouri University of Science and Technology</th>
<th>Narrowed Peers</th>
<th>Percent Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Academic Support Per FTE</strong></td>
<td>$883</td>
<td>$2,780</td>
<td>69% less than peers</td>
</tr>
<tr>
<td><strong>Institutional Support Per FTE</strong></td>
<td>$1,463</td>
<td>$3,779</td>
<td>62% less than peers</td>
</tr>
<tr>
<td><strong>Student Service Per FTE</strong></td>
<td>$2,426</td>
<td>$2,059</td>
<td>17% more than peers</td>
</tr>
</tbody>
</table>

As shown in the breakdown of support costs above, Missouri S&T spends 69% less on academic support than its peers. Operationally, this means the Missouri S&T campus spends less on deans and other academic support such as libraries than its peers. Of note, Missouri S&T did not have deans during the time period of this analysis, however, even with the addition of deans, Missouri S&T will remain far below its peers in academic support. Missouri S&T spends 62% less than its peers on institutional support costs. Institutional support costs represent true, centralized administration and includes executives as well as Finance, HR, IT, marketing, and development. The $1,897 variance in academic support per student and the $2,316 variance are the two significant factors driving Missouri S&T’s support cost per student below peers. These differences illustrate the effect of a dramatic increase in enrollments without a corresponding investment in academic and institutional support.

The Missouri S&T campus spends more than its peers in student services per student with a $367 difference, or 17%. Student services comprises activities that contribute to the intellectual, emotional, and physical well-being of students including student organizations, intramural athletics, and student activities, as well as student admissions, registrar, and financial aid. In theory, students are able to directly benefit from the spending on various activities and resources provided by student services spending. Of note for campuses within the system, those with student services spending closer to peer amounts tended to have higher rates of enrollment growth.
For primary program costs, Missouri S&T expends roughly 5% less than its peers in instruction. Missouri S&T spends significantly less than peers on public service. However, the most significant factor is Missouri S&T’s primary program spend is 83% less in research per student than its peers. Although Missouri S&T is second among system campuses in research per student, it lags significantly behind its narrowed peer set. The following chart will explore the relationship between research per student and unrestricted revenues per student.
The Missouri S&T campus fell behind in growing its research. As the chart above demonstrates, as peer institutions grew research by nearly 45% over FY2008, the Missouri S&T campus decreased by ten percent. Compared to its peers, in FY2013, there was a $125 million difference in research spend, which is approximately 81% lower.

It is important to note the amount of research is measured by dollars expended for benchmarking purposes. Most research grants are paid on a cost reimbursement basis, so grants are at best a break-even proposition. However, the method for calculating the reimbursement of overhead is highly restricted and capped in certain areas by Federal Regulation. As such, research must be subsidized by other sources. Based on the most recent cost study, it costs the Missouri S&T campus $1.16 for every dollar of research revenue. Sixteen cents has to come from somewhere, and at public universities, it is largely from tuition and state support.
The above chart illustrates the correlation between research funding per student (vertical axis) and tuition and fees plus state appropriations per student (horizontal axis) for Missouri S&T peer institutions in FY2013. The chart shows the inherent relationship between unrestricted funding (tuition and state appropriations) and the amount of research an institution is able to generate.

The black line on the chart represents a line of best fit for the different points on the chart, noting the positive correlation between tuition and state support per student FTE and research per student FTE. For the Missouri S&T set of peers, this correlation analysis has a p-value of 0.001. This is significantly below the other campuses which indicates a much stronger correlation. A smaller p-value indicates the relationship between state appropriations and tuition per student has a significant positive relationship with research expenditures per student.

As a whole, the public higher education institutions, including STEM focused institutions, faced the same market pressure from a reduction in state appropriations as the University
of Missouri System. However, other institutions across the nation responded in a wholly different manner than the University of Missouri System: raising tuition to cover state funding shortfalls. Other’s lack of pricing restrictions allowed them to free internal margins and focus on growing research funding from external sources.

**S&T-14**  
**Missouri S&T Peer Trajectories**

The scatterplot chart above demonstrates the growth of instructional costs (vertical axis) and research costs (horizontal axis) for FY2008 to FY2013. The point itself represents the ending point of FY2013 with the line tracing the path over the previous five years. Note that most institutions in the narrow peer set grew instructional expenses (by moving up) while growing research (by moving right), with the one exception being Missouri S&T.
As with the previous chart, the point represents FY2013 with the line representing a five year history of both full-time equivalent enrollment growth (Fall 2008 - 2013) and growth in state appropriations and tuition. Note that most institutions increased total revenues per student (by moving up on the chart) instead of growing enrollment (by moving right on the chart). Unlike their peers, Missouri S&T’s trend line illustrates faster enrollment growth than related revenue growth.
Peer Narrowing

Peer Comparison Definitions

The University of Missouri St. Louis (UMSL) peer group was originally developed by John Minter & Associates in 2005. Since the initial study, the campus validated the peer set in 2007. The current peer set contains 30 public institutions, with many operating in a major metropolitan center. Many institutions in the peer set participate in the Urban 21, a group of universities located in urban centers that work together and exchange data to help one another achieve their educational missions. Both the UMKC campus and the UMSL campus are members of the Urban 21.

Narrowing the universe of peer institutions for this analysis is important for several reasons including efficiency in making comparisons, finding a set of institutions of operating scope similar to University of Missouri System institutions, and finding a set of institutions that face many of the similar pressures and expectations for performance. The Division of Finance and Academic Affairs at University of Missouri System worked with the Chancellor, Provost, and CFO to narrow UMSL’s peer set to a smaller subset of peers that better resemble the economics of the campus. To arrive at a narrow set of peers, the team utilized similar criteria from the System peer definitions.
The scatterplot above demonstrates the relationship between the size of an institution’s spend on instruction (vertical axis) versus the size of an institution’s spend on research (horizontal axis) for the UMSL’s peer set. Note the significant number of peers from the initial data that exceed $50 million in research expense and $250 million in instructional expense. For comparison purposes, UMSL’s research and instruction expenditures in 2013 amounted to $14 million and $91 million, respectively.
The scatterplot above demonstrates the relationship between an institution’s student-related revenue (tuition and state appropriations) and that institution’s enrollment for UMSL’s peer set. Note that most institutions exceed UMSL in both enrollment and net tuition plus state appropriations. For reference, UMSL enrolled 10,856 full-time equivalent students for fall 2013 and had $137 million in net tuition plus state support for FY2013. As noted in the chart above, several of UMSL’s peer institutions had double both the enrollment and revenues of the UMSL campus.

For the purposes of the following analysis, the peer set was narrowed to exclude institutions with operations orders of magnitude larger than UMSL. The following institutions are included in UMSL’s narrowed peer set:

- Cleveland State University
- Indiana State University
- University of Arkansas at Little Rock
- University of Massachusetts – Boston
- University of Memphis
The following table demonstrates the size of the UMSL as compared to the average for narrowed peers and excluded peers:

<table>
<thead>
<tr>
<th></th>
<th>UMSL-3</th>
<th>Average Number of Students Receiving a Bachelor’s Degree FY 2013</th>
<th>Average Research Expenditures FY 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average Full-Time Equivalent</td>
<td>Educational Costs FY 2013</td>
<td>2013-2014</td>
</tr>
<tr>
<td>Fall Enrollment</td>
<td>10,856</td>
<td>183,075,531</td>
<td>1,924</td>
</tr>
<tr>
<td>University of Missouri-St Louis</td>
<td>Narrowed Peers</td>
<td>13,386</td>
<td>260,117,903</td>
</tr>
<tr>
<td>Aspirational Peers</td>
<td>23,288</td>
<td>540,982,500</td>
<td>4,287</td>
</tr>
</tbody>
</table>

**Breakdown of Tuition**

**UMSL-4**

**Tuition & Fee History**

Tuition and fees net of scholarship allowances is a core revenue source for UMSL. Tuition and fees are primarily recorded in the operations fund. Tuition and fees (gross) are reduced by scholarship allowances, or student aid funded by unrestricted university operation funds, resulting in net tuition and fee revenue. Net tuition and fees is the largest source of funding for the University operations fund budget. In FY2008 net tuition and fees represented approximately 53% of the University’s operations fund revenue; by FY2014 that number had grown to roughly 60%.
Tuition, which is primarily assessed to students on a per credit hour basis, is by far the largest revenue contributor equaling 89% and 92% of tuition and fee revenue in FY2008 and FY2014 respectively.

In an effort to simplify fees for students and families, the UMSL campus approved a comprehensive base tuition rate starting in FY2014 that combined per credit hour tuition rates with activity, facility, health service, and IT fees which are charged to all students. The campus no longer assesses activity, facility, health service, and IT fees separately.

Supplemental fees are assessed for individual courses and are used to partially offset the additional cost of providing high cost instructional programs and/or courses. Supplemental fees contributed 4% and 6% of tuition and fees for FY2008 and FY2014, respectively. Other miscellaneous fees, which contribute 2% of the total, include student finance charges, late payment fees, continuing education, and other fees.

UMSL-5

Tuition Detail by Student Type

The previous charts illustrated net tuition and fee revenue by the type of fee. The above pie charts focus on student level and residency in relation to FY2014 gross tuition and fees and enrollment. The chart on the left shows undergraduate students contribute 77% of student revenue at the UMSL. This percentage is comparable to MU (83%) and to Missouri S&T (82%).

The chart on the right shows the full time equivalent (FTE) students broken by student level and residency. 83% of the students at UMSL in FY2014 were undergraduates.

Missouri resident undergraduate students make up 76% of the student population and contribute 61% of the net tuition and fees. This is the student group governed by SB389.
Conversely nonresident undergraduate students make up only 4% of the student population and contribute 12% of the tuition and fee revenue.

Graduate students make up 15% of the student population and contribute 18% of the gross tuition and fee revenue. Professional school students make up the remaining 2% of the student population and contribute 5% of the gross tuition and fee revenue.

Nonresident students who qualify for metro tuition rates make up 4% of the student population and contribute 5% of gross tuition and fees.

UMSL-6
State Appropriations plus Net Tuition & Fees Compared to Peers

The chart above shows total state appropriations and net tuition and fees per full-time equivalent (FTE) student in FY2013 versus UMSL’s narrowed peer set. UMSL ranks seventh out of the ten campus peers in total state appropriations and net tuition funding per FTE. Net tuition per FTE makes up 61% of the total which is slightly higher than the peer average of 59%. State appropriations make up 39% while UMSL’s peer average is 41%. 
The chart above shows fall of 2010 and 2014 undergraduate in-state tuition and fee rates per semester. In FY2010 UMSL ranked second out of ten among its peers in cost of tuition and fees. In 2014 UMSL ranked fourth; equal to the peer average. From FY2010 to FY2014 UMSL’s peers increased tuition by 25% compared to UMSL’s 10%.

UMSL does not compete directly with its narrowed peer set for prospective students. Rather, UMSL competes primarily with local community colleges, other public institutions in the region, and private institutions in the St. Louis metropolitan area. At the undergraduate level, UMSL relies heavily on transfer students from both community colleges and other four-year institutions. In fall 2012 (FY2013), 78% of UMSL’s new undergraduates were transfer students. UMSL’s tuition is lower than its private competitors, but much higher than local community colleges and somewhat higher than other public institutions across the state. The community college cost difference is exacerbated for A+ students who are able to attend community colleges for two years at no cost.
Breakdown of Cost to Educate a Student

UMSL-8
Enrollment Growth to Cost Growth

The chart above illustrates UMSL’s growth rates in both enrollment and total costs compared to its peers. UMSL grew FTE student enrollment from FY2008 to FY2010, but became stagnant between FY2010 and FY2013. Paradoxically, UMSL experienced flat cost growth between FY2008 and FY2010, but began increasing cost between FY2010 and FY2013, now exceeding the cumulative growth in enrollment. In nominal terms, UMSL has increased cost per student over the past 3 years.

UMSL’s peers had a faster growth in total costs with similar growth rate in FTE enrollment as UMSL. The trend over time indicates UMSL is growing spending per student less than peers, although the trend over the most recent three years has mirrored peer trends.
Primary program costs include instruction, research, and public service expenses. These types of expenses are largely related to academic programming and are generally the non-administrative costs borne at individual colleges throughout a university. The average peer spends approximately $12,316 per student in primary program costs, while UMSL spends roughly $11,545 per student. Thus, UMSL expends 7% less in primary programs per student than its peers.

Support costs include institutional, academic, and student services support expenses. These costs are generally the more centralized costs at a university, though academic support costs include those of deans and administrative functions at the college level. UMSL’s peers spend roughly $7,116 per student, while UMSL spends approximately $5,319 per student. Therefore, UMSL spends 26% less than its peers in support costs per student.

Overall, UMSL spends less per student compared to the average amount spent by its peers for both primary and support costs. The following charts will break down the variances by the different areas of spend for each of these two major functions.
As shown in the breakdown of support costs above, UMSL spends 7% less on academic support than its peers. Operationally, this means UMSL spends less on deans and other academic support such as libraries than its peers. UMSL also spends 23% less than its peers on institutional support costs. Institutional support costs represent true, centralized administration and includes executives as well as finance, HR, IT, marketing, and development.

UMSL spends less than its peers in student services per student with a $1,114 difference. Student services comprises activities that contribute to the intellectual, emotional, and physical well-being of students including student organizations, intramural athletics, admissions, registrar, student financial aid, and student activities. In theory, students are able to see and directly benefit from the spending on various activities and resources provided by student services spending. UMSL expects its student services expenses to increase over time due to strategic planning fund investments and the opening of its new Recreation and Wellness Center.
For primary program costs, UMSL spends 6% less than its peer on instruction. However, UMSL spends 46% less on research than its peers. Although the difference is significant, overall, research is not a large part of operations for UMSL and its peers, representing only 11% of primary programs expense for the campus, as compared to 73% for instruction. UMSL spends approximately 63% more than its peers on public services. UMSL is involved extensively in the St. Louis metropolitan area and is recognized as an anchor institution in North St. Louis County. In FY2013, approximately 75% of UMSL’s public service expenses were funded from grants and gifts. UMSL’s largest public service grant generating unit is the Missouri Institute of Mental Health. St. Louis Public Radio 90.7 KWMU operates almost exclusively on public service gifts.
As shown above, with the exception of 2010, UMSL has experienced some growth in research. However, research is a small part of the campus’ overall operation and tends to be more volatile as a small number.

It is important to note the amount of research is measured by dollars expended for benchmarking purposes. Most research grants are paid on a cost reimbursement basis, so grants are at best a break-even proposition. However, the method for calculating the reimbursement of overhead is highly restricted and capped in certain areas by Federal Regulation. As such, research must be subsidized other sources. Based on the most recent cost study, it costs UMSL $1.20 for every dollar of research revenue. Twenty cents has to come from somewhere, and at public universities, it is largely from tuition and state support.

In summary, UMSL spends a larger share (68% vs. 63%) than its narrowed peers on primary program costs and a lower share (32% vs. 37%) on support costs. UMSL spends less per FTE student than its narrowed peers primarily because net tuition and state appropriations are below the narrowed peer average: $1,618 in FY2013. The difference

OPEN – GB – INFO 1-63
grows to $2,394 when all revenue sources are considered. Net tuition and fees comprise 64% of UMSL’s operating revenue vs. 59% for its narrowed peers. Stated in a different way, UMSL students pay $1.58 per dollar of state appropriations as opposed to $1.49 at its peers.
The above chart illustrates the correlation between research funding per student (vertical axis) and tuition and fees plus state appropriations per student (horizontal axis) for UMSL’s peer institutions in FY2013. Unlike other campuses, there is not a strong relationship between unrestricted funding and the amount of research an institution is able to generate. This is largely a function of the peer set and the size of the research operation in the peer set. Whereas UMSL’s peer set has a maximum research per FTE of $4,000, only one campus on Columbia’s peer set does less than $4,000 in research per FTE student.
The scatterplot chart above demonstrates the growth of instructional costs (vertical axis) and research costs (horizontal axis) for UMSL’s peer set for FY2008 to FY2013. The point itself represents the ending point of 2013 with the line tracing the path over the previous five years. Note that most institutions in the narrow peer set moved farther than UMSL, with the majority of the movement trending up (growing instruction) and to the right (growing research).
As with the previous chart, the point represents FY2013 with the line representing a five year history of both full-time equivalent enrollment growth (Fall 2008 - 2013) and growth in state appropriations and tuition. Note that most of the narrow peer institutions moved up on the chart (increasing tuition or state appropriations) while remaining static or decreasing enrollment.
Peer Narrowing

Peer Comparison Definitions

The University of Missouri-Kansas City’s (UMKC) peer group was originally developed by John Minter & Associates in 2005. Since the initial study, the campus validated the peer set in 2007. The current peer set contains 24 public institutions, with many operating in a major metropolitan center. Many institutions in the peer set participate in the Urban 21, a group of universities located in urban centers that work together and exchange data to help one another achieve their educational missions. Both UMKC and UMSL are members of the Urban 21.

Narrowing the universe of peer institutions for this analysis is important for several reasons including efficiency in making comparisons, finding a set of institutions of operating scope similar to University of Missouri System institutions, and finding a set of institutions that face many of the similar pressures and expectations for performance. The Division of Finance and Academic Affairs at University of Missouri System worked with each campus Chancellor, Provost, and CFO to narrow UMKC’s peer set to a smaller subset of peers that better resemble the economics of the campus. To arrive at a narrow set of peers, the team utilized similar criteria from the System peer definitions.
The scatterplot above demonstrates the relationship between the size of an institution’s spend on instruction (vertical axis) versus the size of an institution’s spend on research (horizontal axis) for the UMKC peer set. Note the significant number of peers from the initial data that exceed $100 million in research expense and $250 million in instructional expense. For comparison purposes, UMKC’s research and instruction expenditures in FY2013 amounted to $21 million and $185 million, respectively.
The scatterplot above demonstrates the relationship between an institution’s student-related revenue (tuition and state appropriations) and that institution’s enrollment for UMKC’s peer set. Note that most institutions exceed UMKC in both enrollment and net tuition plus state appropriations. For reference, UMKC enrolled 12,158 full-time equivalent students for fall 2013 and had $206 million in net tuition plus state support for FY2013. As noted in the chart above, several of UMKC’s peer institutions had double both the enrollment and revenues of the UMKC campus.

For the purposes of the following analysis, the peer set was narrowed to exclude institutions with operations orders of magnitude larger than UMKC. The following institutions are included in UMKC’s narrowed peer listing:

- Cleveland State University
- East Tennessee State University
- University of Akron
- University of Arkansas at Little Rock
- University of Memphis
University of Nevada Reno
University of South Alabama
University of Toledo
University of Wisconsin – Milwaukee
Wright State University

The following table demonstrates the size of UMKC as compared to the average for narrowed peers and excluded peers. However, it bears noting UMKC has four professional schools and a Conservatory of Music and Dance, which is significantly different from the peer group and other University of Missouri System campuses. (The table below also only includes bachelor degrees, and does not reflect the professional degrees awarded by the campus schools of Medicine, Dentistry, Pharmacy and Law.):

<table>
<thead>
<tr>
<th></th>
<th>Average Full-Time Fall Enrollment</th>
<th>Average Educational Costs FY 2013</th>
<th>Average Number of Students Receiving a Bachelor's Degree 2013-2014</th>
<th>Average Research Expenditures FY 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Missouri-Kansas City</td>
<td>12,158</td>
<td>311,614,584</td>
<td>1,705</td>
<td>21,307,389</td>
</tr>
<tr>
<td>Narrowed Peers</td>
<td>15,850</td>
<td>341,588,492</td>
<td>2,500</td>
<td>38,256,152</td>
</tr>
<tr>
<td>Aspirational Peers</td>
<td>25,045</td>
<td>779,826,537</td>
<td>4,181</td>
<td>171,435,264</td>
</tr>
</tbody>
</table>

**Breakdown of Tuition**

**UMKC-4**

**Tuition & Fee History**

![Tuition Pie Chart 2008](image)

- Tuition: 92%
- A&F Fees: 1%
- IT Fees: 3%
- Misc Fees: 2%
- Suppl Fees: 2%

![Tuition Pie Chart 2014](image)

- Tuition: 90%
- A&F Fees: 1%
- IT Fees: 3%
- Misc Fees: 2%
- Suppl Fees: 4%
Tuition and fees net of scholarship allowances is a core revenue source for UMKC. Tuition and fees are primarily recorded in the operations fund. Tuition and fees (gross) are reduced by scholarship allowances, or student aid funded by unrestricted university operation funds, resulting in net tuition and fee revenue. Net tuition and fees is the largest source of funding for the University operations fund budget. In FY2008 net tuition and fees represented approximately 45% of the University’s operations fund revenue; by FY2014 that number had grown to roughly 52%.

Tuition, which is primarily assessed to students on a per credit hour basis, is by far the largest revenue contributor equaling 92% and 90% of tuition and fee revenue in FY2008 and FY2014 respectively. It is worth noting 44% of net tuition and fees are generated by undergraduate students, and 36% by professional students. This statistic points out both the structural difference between UMKC and its peers, as well as the opportunity to grow undergraduate student enrollment and tuition revenue.

Activity, facility, and health service fees, typically referred to as activity and facility fees, fund activities that enhance the student university experience and are often initiated by the students themselves. These fees are used to fund such things as student organizations, student recreational facilities, student unions, student transportation, and student health services. Activity and facility fees are assessed to all on campus students. Activity and facility fees contribute only 1% of total tuition and fee revenue.

Information Technology (IT) fees support the campus information technology infrastructure, student computer laboratories, and other student computing support. IT fees are assessed to all students and contribute 3% of tuition and fees. IT fees and activity and facility fees are considered required fees and along with tuition are governed by SB389 for resident undergraduate students.

Supplemental fees are assessed for individual courses and are used to partially offset the additional cost of providing high cost instructional programs and or courses. Supplemental fees contributed 2% and 4% of tuition and fees for FY2008 and FY2014, respectively. Other miscellaneous fees, which contribute 2% of the total, include student finance charges, late payment fees, continuing education, and other fees.
The previous charts illustrated net tuition and fee revenue by the type of fee. The above pie charts focus on student level and residency in relation to FY2014 gross tuition and fees and enrollment. The chart on the left shows undergraduate students contribute 44% of student revenue at UMKC.

The chart on the right shows the full time equivalent (FTE) students broken by student level and residency. Sixty six percent of the students at UMKC in FY2014 were undergraduates.

Missouri resident undergraduate students make up 46% of the student population and contribute 26% of tuition and fees at UMKC. This is the student group governed by SB389. Conversely nonresident undergraduate students make up only 9% of the student population and contribute 11% of tuition and fee revenue.

Graduate students make up 19% of the student population and contribute 20% of the gross tuition and fee revenue. Professional school students make up the remaining 15% of the student population but contribute 36% of the gross tuition and fee revenue.

Metro students, nonresident students who qualify for metro tuition rates at UMKC, make up 14% of the student population and contribute 9% of gross tuition and fees.
The chart above shows total state appropriations and net tuition and fees per full-time equivalent (FTE) student in FY2013 versus the system peer set. UMKC ranks second out of the 11 system peers in total state appropriations and net tuition funding per FTE. Net tuition per FTE makes up 64% of the total which is slightly higher than the peer average of 59%. Again, this is due to the four professional schools which yield high net tuition. State appropriations make up 36% while UMKC peer average is 41%.
The chart above shows fall of 2010 and 2014 undergraduate in-state tuition and fee rates per semester. In 2010 UMKC ranked third out of 11 amongst its peers in cost of tuition and fees. In 2014 UMKC ranked fifth; $145 above the peer average. From 2010 to 2014 UMKC’s peers increased tuition by 24% compared to UMKC’s 10%. However, it is unlikely other universities in the peer group are legislatively constrained in setting undergraduate tuition rates such as Missouri schools are through SB389.
The chart above illustrates the UMKC total growth over base of FY2008 in both enrollment and total costs compared to its peers. UMKC saw significant growth in enrollment between FY2008 and FY2012, with enrollment flattening in FY2013. Although UMKC has been able to maintain steady enrollment growth, the growth in total costs has exceeded and continued to increase since FY2008. In nominal terms, this means UMKC has increased cost per student over the past five years, with the gap widening in FY2012 and FY2013. Again, the large professional school expense base influences this metric. For example, the School of Medicine expense base includes salaries for the medical residents of $25 million, which are in turn reimbursed by affiliate hospitals in Kansas City.

UMKC’s peers had a higher increase in total costs while enrollment has begun to decline from a peak in FY2010. The trend over time indicates UMKC is growing spending per student less than peers while increasing its enrollment at a higher rate. Although UMKC is spending less than its peers, total costs are on an upward trend and continues to exceed its growth in enrollment.
Primary programs costs include instruction, research, and public service expenses. These types of expenses are largely related to academic programming and are generally the non-administrative costs borne at individual colleges throughout a university. The average peer spends approximately $14,506 per student in primary program costs, while UMKC spends roughly $18,481 per student. Thus, UMKC expends 27% more on primary programs per student than its peers. Primary program costs in the four professional schools and the Conservatory account for more than half of the instruction, research and public service expenses at UMKC.

Support costs include institutional, academic, and student services support expenses. These costs are generally the more centralized costs at a university, though academic support costs include those of deans and administrative functions at the college level. UMKC’s peers spend roughly $7,046 per student, while UMKC spends approximately $7,149 per student. Therefore, UMKC spends 1% more than its peers in support costs per student.

Overall, UMKC spends more per student compared to the average amount spent by its peers for both primary and support costs. The following charts will break down the variances by the different areas of spend for each of these two major functions.
As shown in the breakdown of support costs above, UMKC spends 12% more on academic support than its peers. Operationally, this means UMKC spends more on deans and other academic support such as libraries than its peers. UMKC also spends 17% more than its peers on institutional support costs. Institutional support costs represent true, centralized administration and includes executives as well as finance, HR, IT, marketing, and development. The $307 variance in academic support per student and the $438 variance in institutional support per student are offset by a $642 variance in spending on student services per student.

UMKC spends less than its peers in student services per student with a $642 difference, or 32%. Student services comprises activities that contribute to the intellectual, emotional, and physical well-being of students including student organizations, intramural athletics, admissions, registrar, student financial aid, and student activities. In theory, students are able to see and directly benefit from the spending on various activities and resources provided by student services spending. Of note for campuses within the system, those with student services spending closer to peer amounts tended to have higher rates of enrollment growth.
For primary program costs, UMKC expends a substantial 44% more than its peers on instruction. UMKC is the only campus that spends more than its peers on instruction. The significant difference is largely due to the nature of UMKC, as it has many professional schools. More than half of the instructional expenditures are attributed to the four professional schools and the Conservatory. The professional schools require greater spending per student by the colleges, schools, and departments on high cost faculty. The other primary program areas for UMKC are relatively insignificant in scope compared to the size of instruction, with instruction representing roughly 82% of the total primary program spend. UMKC and UMSL and their respective peer sets have small research per student numbers compared to the other two campuses in the System.
Opposite other University of Missouri System campuses, UMKC has held a higher growth in research than its peers between FY2008 and FY2011. However, in FY2011, UMKC significantly reduced the amount of spend on research and by FY2013, UMKC fell below its peers. In FY2013, UMKC only represented 9% of the system’s total research spend, meaning UMKC’s growth rate is largely offset by the slow growth on the other campuses. It is important to note in 2011, Kansas City received a large number of multi-year research awards due to a flurry of federal activity associated with American Reinvestment and Recovery Act (ARRA), which accounted for its large number of awards relative to research spending. In subsequent years, faculty members with large research grant awards left the University, which resulted in a decline of more than $8 million in research grant funding in FY2013 compared to FY2011.

It is important to note research is measured by dollars expended for benchmarking purposes. Most research grants are paid on a cost reimbursement basis, so grants are at best a break-even proposition. However, the method for calculating the reimbursement of overhead is highly restricted and capped in certain areas by Federal Regulation. As such, research must be subsidized by other sources. Based on the most recent cost study, it costs UMKC $1.18 for every dollar of research revenue. Eighteen cents has to come from somewhere, and at public universities, it is largely from tuition and state support.

September 8-9, 2015

OPEN – GB – INFO 1-80
The above chart illustrates the correlation between research funding per student (vertical axis) and tuition and fees plus state appropriations per student (horizontal axis) for Kansas City peer institutions in FY2013. There is an inherent relationship between unrestricted funding and the amount of research an institution is able to generate. As the sum of tuition and state appropriations increase, the amount of research dollars generated increases. Although research is not a significant part of operations compared to MU and Missouri S&T, the increasing relationship between unrestricted funding per student and research expense still exists.

The black line on the chart represents a line of best fit for the different points on the chart, noting the positive correlation between tuition and state support per student FTE and research per student FTE. For the UMKC set of peers, this correlation analysis has a p-value of 0.07. A smaller p-value indicates the relationship between state appropriations and tuition per student has a significant positive relationship with research expenditures per student.
The scatterplot chart above demonstrates the growth of instructional costs (vertical axis) and research costs (horizontal axis) for FY2008 to FY2013. The point itself represents the ending point of FY2013 with the line tracing the path over the previous five years. Note that most institutions in the narrow peer set moved straight up on the chart (increasing instruction cost while maintaining research), similar to UMKC’s experience. The institutions that grew research tended to be the larger institutions.
As with the previous chart, the point represents FY2013 with the line representing a five year history of both full-time equivalent enrollment growth (Fall 2008 - 2013) and growth in state appropriations and tuition. Note that most peers move in a backward “C” shape, showing institutions grew enrollment for a few years, then lost enrollment while still managing to increase total revenue.
UNIVERSITY OF MISSOURI COLUMBIA ANALYSIS AND BENCHMARKING

Peer Narrowing

Peer Comparison Definitions

The University of Missouri-Columbia (MU) in conjunction with John Minter & Associates developed the current peer set in 2005. MU’s peer set is composed of the 33 public institutions in the Association of American Universities (AAU). Since the initial study, the peer group changed for each addition (Georgia Tech) and subtraction (Nebraska) from the AAU. A number of institutions in the AAU represent a flagship institution of a system, similar to the MU campus. In addition to the flagship institutions, the AAU also contains several land-grant institutions with a public service mission similar to the MU Campus.

Narrowing the universe of peer institutions for this analysis is important for several reasons including efficiency in making comparisons, finding a set of institutions of operating scope and mission similar to University of Missouri System institutions, and finding a set of institutions that face many of the similar pressures and expectations for performance. The Division of Finance and Academic Affairs at University of Missouri System worked with the Chancellor, Provost, and CFO to narrow MU’s peer set to a smaller subset of peers that better resemble the economics of the campus. To arrive at a narrow set of peers, the team utilized similar criteria from the System peer definitions.
The scatterplot above demonstrates the relationship between the size of an institution’s spend on instruction versus the size of an institution’s spend on research for the MU peer set. MU’s full peer set represents the AAU Public institutions. Note the significant number of peers from the initial data that exceed $400 million in research expense and $600 million in instructional expense. For comparison purposes, MU’s research and instruction expenditures in FY2013 amounted to $164 million and $331 million, respectively.
The scatterplot above demonstrates the relationship between an institution’s student-related revenue (tuition and state appropriations) and that institution’s enrollment for MU’s peer set. Note MU is near the middle in enrollment, but toward the bottom net tuition plus state support. For reference, MU enrolled 31,942 full-time equivalent students and had $517 million in net tuition plus state support for FY2013. For comparison purposes, MU compares well to most peers from an enrollment standpoint, but is further behind in state support plus net tuition.

For the purposes of the following analysis, the peer set was narrowed to exclude institutions with operations orders of magnitude larger than MU. The following institutions are included in MU’s narrowed peer listing:

- Indiana University
- Iowa State University
- University at Buffalo
- University of California – Santa Barbara
The following table demonstrates the size of MU as compared to the average for narrowed peers and excluded peers:

<table>
<thead>
<tr>
<th></th>
<th>Average Full-Time Equivalent 2013 Fall Enrollment</th>
<th>Average Educational Costs FY 2013</th>
<th>Average Number of Students Receiving a Bachelor's Degree 2013-2014</th>
<th>Average Research Expenditures FY 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Narrowed Peers</td>
<td>27,193</td>
<td>883,978,197</td>
<td>4,881</td>
<td>230,113,483</td>
</tr>
<tr>
<td>University of Missouri-Columbia</td>
<td>31,942</td>
<td>782,869,765</td>
<td>5,189</td>
<td>164,223,719</td>
</tr>
<tr>
<td>Aspirational Peers</td>
<td>37,893</td>
<td>1,882,796,981</td>
<td>6,842</td>
<td>580,930,306</td>
</tr>
</tbody>
</table>

Breakdown of Tuition

MU-4
Tuition & Fee History

Tuition and fees net of scholarship allowances is a core revenue source for the MU. Tuition and fees are primarily recorded in the operations fund. Tuition and fees (gross) are reduced by scholarship allowances, or student aid funded by unrestricted university operation funds, resulting in net tuition and fee revenue. Net tuition and fees is the largest source of funding for the MU operations fund budget. In FY2008 net tuition and fees represented
approximately 40% of the MU’s operations fund revenue; by FY2014 that number had grown to roughly 50%.

Tuition, which is primarily assessed to students on a per credit hour basis, is by far the largest revenue contributor equaling 90% and 88% of tuition and fee revenue in FY2008 and FY2014 respectively.

Activity, facility, and health service fees, typically referred to as activity and facility fees, fund activities that enhance the student university experience and are often initiated by the students themselves. These fees are used to fund such things as student organizations, student recreational facilities, student unions, student transportation, and student health services. Activity and facility fees are assessed to all on campus students. Activity and facility fees contribute only 1% of total tuition and fee revenue.

Information Technology (IT) fees support the campus information technology infrastructure, student computer laboratories, and other student computing support. IT fees are assessed to all students and contribute 3% of tuition and fees. IT fees and activity and facility fees are considered required fees and along with tuition are governed by SB389 for resident undergraduate students.

Supplemental fees are assessed for individual courses and are used to partially offset the additional cost of providing high cost instructional programs and or courses. Supplemental fees contributed 4% and 6% of tuition and fees for FY2008 and FY2014 respectively. Other miscellaneous fees, which contribute 2% of the total, include student finance charges, late payment fees, continuing education, and other fees.

MU-5
Tuition Detail by Student Type

The previous page discussed net tuition and fee revenue by the type of fee. The above pie charts focus on student level and residency in relation to FY2014 gross tuition and fees and
enrollment. The chart on the left shows undergraduate students contribute 77% of student revenue at MU.

The chart on the right shows the full time equivalent (FTE) students broken by student level and residency. 83% of the students at MU in FY2014 were undergraduates.

Missouri resident undergraduate students make up 60% of the student population and contribute 42% of the tuition and fees. This is the student group governed by SB389. Conversely, nonresident undergraduate students make up only 23% of the student population and contribute 35% of the tuition and fee revenue.

Graduate students make up 13% of the student population and contribute 14% of the gross tuition and fee revenue. Professional school students make up the remaining 4% of the student population and contribute 9% of the gross tuition and fee revenue.

MU-6

State Appropriations plus Net Tuition & Fees Compared to Peers

The chart above shows total state appropriations and net tuition and fees per full-time equivalent (FTE) student in FY2013 versus the MU narrow peer set. MU ranks tenth out of the ten campus peers in total state appropriations and net tuition funding per FTE. Net tuition per FTE makes up 60% of the total which is slightly lower than the peer average of 66%. State appropriations make up 40% while MU’s peer average is 34%.
The chart above shows FY2010 and FY2014 undergraduate in-state tuition and fee rates per semester. In FY2010 MU ranked fifth out of ten amongst its peers in cost of tuition and fees. In FY2014 MU ranked seventh; $740 below the peer average. From FY2010 to FY2014 MU’s peers increased tuition by a greater percentage than MU.
Breakdown of Cost to Educate a Student

MU-8
Enrollment Growth to Cost Growth

The chart above illustrates MU’s total growth in both enrollment and total costs compared to its peers. MU saw significant growth in enrollment between FY2008 and FY2012, with enrollment flattening in FY2013. Over a base year of FY2008, MU has grown costs and enrollments at a relatively equal pace. This means in nominal dollars, the amount spent per student has not changed significantly over the past five years.

MU’s peers had a significantly higher increase in total costs, while peer’s total enrollment growth was only roughly 5% over a base year of FY2008. The trend over time indicates MU is spending significantly less than its peers while continuing to grow enrollment. While this slower cost growth has been a net positive for the University’s students, there have been some unintended impacts to other areas of the operation.
Cost per FTE Student

<table>
<thead>
<tr>
<th>Primary Program Costs Per FTE</th>
<th>Narrowed Peers</th>
<th>University of Missouri-Columbia</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>23,811</td>
<td>19,241</td>
</tr>
<tr>
<td></td>
<td>20% less than peers</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Support Cost Per FTE</th>
<th>Narrowed Peers</th>
<th>University of Missouri-Columbia</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8,697</td>
<td>5,268</td>
</tr>
<tr>
<td></td>
<td>40% less than peers</td>
<td></td>
</tr>
</tbody>
</table>

Primary program costs include instruction, research, and public service expenses. These types of expenses are largely related to academic programming and are generally the non-administrative costs borne at individual colleges throughout a university. The average peer spends approximately $23,811 per student in primary program costs, while MU spends roughly $19,241 per student. Thus, MU expends 20% less in primary programs per student than its peers.

Support costs include institutional, academic, and student services support expenses. These costs are generally the more centralized costs at a university, though academic support costs include those of deans and administrative functions at the college level. MU’s peers spend roughly $8,697 per student, while MU spends approximately $5,268 per student. Therefore, MU spends 40% less than its peers in support costs per student.

Overall, MU spends less per student compared to the average amount spent by its peers for both primary and support costs. The following charts will break down the variances by the different areas of spend for each of these two major functions.
As shown in the breakdown of support costs above, MU spends 38% less on academic support than its peers. Operationally, this means the MU campus spends less on Deans and other academic support such as libraries than its peers. MU also spends 51% less than its peers on institutional support costs. Institutional support costs represent true, centralized administration and includes executives as well as Finance, HR, IT, marketing, and development. The $1,610 variance in academic support per student and the $1,389 variance in institutional support per student are the two significant factors driving MU’s support cost per student below peers. The savings in these areas benefit students by limiting the amount of overhead passed along to students.

The MU campus also spends less than its peers in student services per student with a $429 difference, or 27%. Student services comprises activities that contribute to the intellectual, emotional, and physical well-being of students including student organizations, intramural athletics, admissions, registrar, student financial aid, and student activities. In theory, students are able to directly benefit from the spending on various activities and resources provided by student services spending.
For primary program costs, MU expends roughly 25% less than its peers in instruction, the highest percent difference amongst all other University of Missouri System campuses. However, the most significant factor is MU’s primary program spend is 40% less in research per student than its peers. Although MU is the leader of all campuses in spending per student on research, it has been unable to grow research over the past five years. The following chart will explore the relationship between research per student and unrestricted revenues per student.

Both UMSL and MU spent more than its peers per student for public services. MU spent approximately 133% more than its peers on public service. This largely relates to MU’s land grant mission and extension activities. Among the narrowed peer set, only Iowa State and Buffalo are land grant institutions with a similar mission.
The MU campus fell behind in growing its research. As the chart above demonstrates, as peer institutions grew research by nearly 40% over FY2008, the MU campus remained flat. Compared to its peers, in FY2013, there was a $65 million difference in research spend, which is approximately 29% lower.

It is important to note the amount of research is measured by dollars expended for benchmarking purposes. Most research grants are paid on a cost reimbursement basis, so grants are at best a break-even proposition. However, the method for calculating the reimbursement of overhead is highly restricted and capped in certain areas by Federal Regulation. As such, research must be subsidized by other sources. Based on the most recent cost study, it costs the MU campus $1.27 for every dollar of research revenue. Twenty-seven cents has to come from somewhere, and at public universities, it is largely from tuition and state support.
The above chart illustrates the correlation between research funding per student (vertical axis) and tuition and fees plus state appropriations per student (horizontal axis) for MU peer institutions in FY2013. The chart shows the inherent relationship between unrestricted funding (tuition and state appropriations) and the amount of research an institution is able to generate.

The black line on the chart represents a line of best fit for the different points on the chart, noting the positive correlation between tuition and state support per student FTE and research per student FTE. For the MU set of peers, this correlation analysis has a p-value of 0.28. A smaller p-value indicates the relationship between state appropriations and tuition per student has a significant positive relationship with research expenditures per student.

As a whole, the public higher education institutions, especially flagships, faced the same market pressure from a reduction in state appropriations as MU. However, other institutions across the nation responded in a wholly different manner than MU: raising tuition to cover state funding shortfalls. Other’s lack of pricing restrictions allowed them to free internal margins and focus on growing research funding from external sources.
The scatterplot chart above demonstrates the growth of instructional costs (vertical axis) and research costs (horizontal axis) for FY2008 to FY2013. The point itself represents the ending point of FY2013 with the line tracing the path over the previous five years. Note that most flagship institutions grew instructional expenditures, but only a subset grew research expenditures.
As with the previous chart, the point represents FY2013 with the line representing a five year history of both full-time equivalent enrollment growth (Fall 2008 - 2013) and growth in state appropriations and tuition. Note the relationship of the movement between the institutions who grew research on the previous view (20, 23, 24, and 32) and their movement on the scatterplot chart above. Note that each of these data points either moves up (20, 23, 32) meaning tuition revenue plus state support increased while enrollment remained flat, or to the left meaning state support plus tuition remained constant while enrollment decreased. In both cases, net revenue per student would increase either as a result of a price increase or a decrease in enrollment.
POTENTIAL TUITION POLICY DIRECTIONS FOR THE FUTURE

Goals for a Tuition Plan

- Generate more net revenue
- Facilitate achievement of the strategic plan
- Be more student friendly
  - Simplified bill
  - Predictability
  - Limited pricing variables
- Be efficient and cost effective to administer

As the University and campuses consider new tuition strategies and structures, some key goals should be considered in the overall tuition policy discussion.

First, a new tuition strategy and/or structure must generate more net revenue. The University will have to grow net tuition and fee revenue in the future to accomplish its strategic goals.

Secondly, the new tuition strategy or structure must facilitate the achievement of the individual campus’ strategic plan.

In addition, a new tuition structure should be student friendly. One way to achieve this would be to develop a tuition pricing strategy that would result in a more simplified bill. Another approach would be a structure that provides more predictability for students and parents. Given the current pricing structure including the assessment of different supplemental fees by individual course, students and parents do not know how much the next semester bill will be until the exact courses the students will take have been identified. Predictability could be enhanced by developing a tuition pricing strategy that has a more limited set of pricing variables. For example, groups or tiers of supplemental course fees or differential tuition rates instead of the broad spectrum of supplemental course fees now in existence.

It is also important to design a tuition structure that is cost effective and efficient to administer to help keep institutional support costs low. Any substantive change to the tuition and fee pricing structure may require reevaluation of academic degree programs to ensure they are consistent with campus goals, such as degree completion in four years.

Plateau Rate Tuition

*Definition: Students pay the same rate for a range of credit hours, typically 12-17 credit hours. This rate may change throughout students’ time on campus. Plateau rates hold prices constant for a range of consumption, encouraging students to take more classes.*
Plateau rates have proven a good strategy for some universities, depending on what student behaviors the universities are attempting to incent. This type of pricing strategy would result in a flat tuition rate for a set range of credit hours. Typically a range of 12-17 hours is used. The bottom of the range is almost always 12 credit hours, or full time student status for federal financial aid, the top is usually set at 17 credit hours or below. Studies have shown it becomes cost prohibitive if the range goes higher than 17 credit hours. When converting from a per credit hour tuition rate, it is critical the plateau tuition rate be set high enough to maintain or increase projected net tuition revenue, taking into account changes in student credit hour consumption.

Pros:
- This type of tuition pricing strategy can decrease time to degree completion, and thus the total cost of obtaining a degree, including opportunity cost.
- Allows for a more predictable bill.
- It is often perceived as student friendly.
- It can be combined with other tuition pricing strategies, such as differential tuition rates.

Cons:
- If the plateau range and the tuition rate is not set high enough, there can be negative financial consequences to the institution.
- There can be additional institutional costs with this type of model.
  - Students tend to enroll in more courses and then drop more frequently as there is no penalty as long as they are under the 17 credit hour limit. This is another reason the 17 credit hour cap is financially important.
  - It is very important there are sufficient courses available to ensure students are able to get into courses timely to reduce degree completion time.
- In the transition year, it appears rates are increasing more than they actually are on average.
- Can be perceived as inequitable to students taking different credit hour loads; winners and losers in the year of conversion depending on student behavior.
- Per credit hour rates for part-time students must also be maintained.

**Differential Tuition**

*Definition: Students pay different prices based on degree program or the department teaching the class. This pricing model aligns student pricing with the cost to teach across the different departments on a campus.*

Differential tuition rates for high cost or high demand programs is another tuition pricing strategy. Examples of high cost programs include nursing, engineering, and business. Differential tuition models can be applied both on a per credit hour basis or a flat fee (plateau) basis and assessed to the student on either a course or degree/program basis. The University’s current tuition plus supplemental fees are an example of a differential tuition model applied on a per credit hour basis and assessed on the course taken. The University’s professional degree programs in medicine and optometry and graduate programs in...
dentistry and nursing at UMKC are examples of a differential flat tuition rate assessed by the academic program.

Pros:

- Differential tuition applied on a per credit hour basis is the current supplemental fee model.
- Differential tuition applied per student for an academic program is also currently used in some professional programs and limited enrollment academic degree programs.
- This type of structure could be combined with a plateau structure and charged per student to a college or degree program. Degree programs could be grouped into buckets or tiers with common tuition to further simplify tuition planning.
  - Provides incentives for improved time to degree completion
  - Results in a more simplified and predictable bill.

Cons:

- When applied on a per credit hour basis, differential tuition results in complicated bills that are not predictable as the amount varies by semester based on the actual courses taken.
- Large percentage increases in supplemental fees require a lot of political capital and can cause ill will but result in very little net new revenue due to the small fee rate base.
- If differential tuition were assessed at the student/degree program level, internal process changes would need to be made to such as:
  - Changes in the internal budget allocation model.
  - Incentives for students to declare majors for high cost degree programs.
    However, providing priority enrollment for high demand majors and courses is one type of incentive that has little or no additional cost to the institution.
- Per credit hour rates for part-time students would need to be maintained, as well as flat rates for full time students in the differential tuition per student model.

**Fixed Price Tuition**

Definition: Undergraduate students pay the same rate for tuition, without increases, for four straight years. Fixed price tuition protects students from pricing changes over time.

One tuition pricing strategy that has been discussed is a four-year fixed rate tuition plan. What would such a plan look like?

Generally, each entering class, or cohort, would have a tuition rate guaranteed for the next four years. After four academic years, the tuition rate would increase to the rate paid by new incoming freshman or part-time students. It would be necessary to maintain a separate rate for part-time and transfer students.
What are the risks and rewards of such a plan? Or, what are the pros and cons of a four year fixed rate (guaranteed) tuition pricing strategy?

Pro:

- The tuition pricing structure results in a very predictable bill for the student.
- If the pricing strategy includes a flat rate or plateau structure component, the student will know the exact amount of the bill. If the pricing strategy is a per credit hour structure, then the student has to know the number of credit hours to know how much the bill would be.
- There is an incentive for the student to complete in four academic years as the cost would increase dramatically if the student needed to stay past year four.
- There are potential monetary gains as the rate structure would have to be based on an average cost model, where the University gains money on average for the first two years and loses money on average for the last two years. In addition, because not all students complete years three and four, there are potential gains from a higher rate in the first two years that is not offset with a loss in years three and four.

Cons:

- It requires large increase in tuition in the first year because the rates are flat for four years. This may create a situation where an institution is not viewed by prospective students as being competitive with its peers because of the high starting tuition.
- It requires each year’s cohort to pay a different tuition rate must be tracked independently.
- It is very risky financially if there is any volatility in other revenue streams, such as state appropriations. For this reason, most public institutions only apply this rate model to nonresident students.
- Must maintain a separate rate for part-time students, transfer students, and students who do not complete in four years.
- There is often a sense of unfairness to students.
- It is expensive to administer student billing systems as each individual student cohort must be managed separately and uniquely. Student systems would have to be reconfigured to manage any change.
- With many co-op programs, it is not possible to complete a degree in four years.
This chart illustrates how a guaranteed rate for four years would work. The diagonal line represents an annual tuition rate adjustment (current approach). C1 represents the flat rate for the first cohort, and C2 the flat rate for the second year cohort. The shaded area on the left shows the potential gains from a higher flat rate in years one and two compared to an annual rate policy and the shaded area on the right shows potential losses in years three and four from the guaranteed rate.

The risks are high for this type of model for resident undergraduate tuition due to the potential volatility of the state appropriation compared to the assumptions made to set the tuition rate. It is more attractive for nonresident students, but there is huge pressure to adopt the plan for resident students as an ‘equity’ issue. Schools who have adopted this model for resident students have not been successful.
REFERENCES
WITH DEFINITIONS/CALCULATIONS

University of Missouri – System Figures:

  
  - Full-Time Equivalent Enrollment: Full-time equivalent fall enrollment
  - Total Expenses: AVG([Academic support - Current year total]) + AVG([Instruction - Current year total]) + AVG([Institutional support - Current year total]) + AVG([Public service - Current year total]) + AVG([Research - Current year total]) + AVG([Student services - Current year total])
  - Bachelor’s Degrees Awarded: Number of student receiving a Bachelor’s Degree
  - Research Expenditures: Research – Current year total
  - Value of Endowment Assets at End of FY: Value of Endowment Assets at End of the Fiscal Year

- **UM-2:** Source: Integrated Postsecondary Education Data System (IPEDS), FY2008 – FY2013
  
  - Research Cost: Research – Current year total
  - Instruction Cost: Instruction – Current year total

- **UM-3:** Source: Integrated Postsecondary Education Data System (IPEDS), Full-Time Equivalent Enrollment Fall 2008 - 2013, State Appropriations Plus Net Tuition: FY2008 - FY2013
  
  - Full-Time Equivalent Enrollment: Full-time equivalent fall enrollment
  - State Appropriations Plus Net Tuition: SUM([State appropriations] + [Tuition and fees after deducting discounts and allowances])

- **UM-4:** Source: University of Missouri System-Wide PeopleSoft Finance General Ledger, Current Funds, Revenue, FY2014

- **UM-5:** Source University of Missouri System-Wide PeopleSoft Finance General Ledger, Current Funds, Expenditures, FY2014

- **UM-6 and UM-7:** Source: State Higher Education Executive Officers (SHEEO), [http://www.sheeo.org/shef](http://www.sheeo.org/shef), definitions below:

September 8-9, 2015

OPEN – GB – INFO 1-104
Net Tuition Revenue calculates the gross amount of tuition and fees collected at public higher education institutions less all state financial aid, institutional tuition discounts and waivers, and medical school tuition and fees. This is an indicator of the share of revenues available for instructional support at public institutions paid by students and families. Figures are per FTE and adjusted for cost of living (COLA) and enrollment mix (EMI) differences. All dollars amounts are in constant 2014 terms as adjusted by the Higher Education Cost Adjustment (HECA). See below for additional information on these adjustment factors.

Educational Appropriations consist of state and local support available for public higher education operating expenses, excluding spending for research, agricultural and medical education. Educational Appropriations are then divided by enrollment to produce a per student (FTE) figure. Figures are adjusted for cost of living (COLA) and enrollment mix (EMI) differences. All dollars amounts are in constant 2014 terms as adjusted by the Higher Education Cost Adjustment (HECA). See below for additional information on these adjustment factors.

- UM-8 and UM-9: Source: State Higher Education Executive Officers (SHEEO), http://www.sheeo.org/shef
- UM-10: Source: National Center for Higher Education Management Systems (NCHEMS)
- UM-11: Source University of Missouri System-Wide PeopleSoft Finance General Ledger
- UM-12: Source University of Missouri System-Wide PeopleSoft Finance General Ledger & PeopleSoft Student Census Tables
- UM-14: Source University of Missouri System-Wide PeopleSoft Finance General Ledger & PeopleSoft Student
- UM-15: Source: Integrated Postsecondary Education Data System (IPEDS)
- UM-16: Source University of Missouri System-Wide PeopleSoft Finance General Ledger
- UM-17: Source University of Missouri System-Wide PeopleSoft Finance General Ledger & PeopleSoft Student
State Appropriations: SUM([State appropriations])/Full-time equivalent fall enrollment
Net Tuition and Fees: SUM([Tuition and fees after deducting discounts and allowances])/Full-time equivalent fall enrollment


• UM-20: Source: Integrated Postsecondary Education Data System (IPEDS), Total Costs: Growth from FY2008 through FY2013, Total Full-Time Equivalent Enrollment Fall 2008 to Fall 2013

• UM-21: Source: Integrated Postsecondary Education Data System (IPEDS), Costs: FY2013, FTE: Fall 2013

• UM-22: Source: Integrated Postsecondary Education Data System (IPEDS), Costs: FY2013, FTE: Fall 2013
• UM-23: Source: Integrated Postsecondary Education Data System (IPEDS), Costs: FY2013, FTE: Fall 2013
  o Instruction Per FTE: AVG([Instruction - Current year total])/AVG([Full-time equivalent fall enrollment])
  o Research Per FTE: AVG([Research - Current year total])/AVG([Full-time equivalent fall enrollment])
  o Public Service Per FTE: AVG([Public service - Current year total])/AVG([Full-time equivalent fall enrollment])

• UM-24: Source: Integrated Postsecondary Education Data System (IPEDS), Research – Current Year Total Growth: FY2008 through FY2013

• UM-25: Research $ and State Appropriations Plus Net Tuition $: Growth from FY2008 through FY2013, Total Full-Time Equivalent Enrollment Fall 2008 to Fall 2013
  o Research $ Per FTE: AVG([Research - Current year total])/AVG([Full-time equivalent fall enrollment])
  o State Appropriations Plus Net Tuition $ Per FTE: SUM([State appropriations]+[Tuition and fees after deducting discounts and allowances])/AVG([Full-time equivalent fall enrollment])
Missouri University of Science & Technology Figures:

- S&T-1: Source: Integrated Postsecondary Education Data System (IPEDS), FY2013
  - Research Cost: Research – Current year total
  - Instruction Cost: Instruction – Current year total

  - Full-Time Equivalent Enrollment: Full-time equivalent fall enrollment
  - State Appropriations Plus Net Tuition: SUM([State appropriations]+[Tuition and fees after deducting discounts and allowances])

  - Full-Time Equivalent Enrollment: Full-time equivalent fall enrollment
  - Total Expenses: AVG([Academic support - Current year total])+AVG([Instruction - Current year total])+AVG([Institutional support - Current year total])+AVG([Public service - Current year total])+AVG([Research - Current year total])+AVG([Student services - Current year total])
  - Bachelor’s Degrees Awarded: Number of student receiving a Bachelor’s Degree
  - Research Expenditures: Research – Current year total

- S&T-4: Source University of Missouri System-Wide PeopleSoft Finance General Ledger

- S&T-5: Source University of Missouri System-Wide PeopleSoft Finance General Ledger & PeopleSoft Student

- S&T-6: Source: Integrated Postsecondary Education Data System (IPEDS), Full-Time Equivalent Enrollment Fall 2013, State Appropriations Plus Net Tuition: FY2013
  - State Appropriations: SUM([State appropriations])/Full-time equivalent fall enrollment
  - Net Tuition and Fees: SUM([Tuition and fees after deducting discounts and allowances])/Full-time equivalent fall enrollment
• S&T-7: Source: Integrated Postsecondary Education Data System (IPEDS), Undergraduate In-State Net Tuition and Fees: Fall 2010 and Fall 2014
  o Net Tuition and Fees: SUM([Undergraduate In-State Tuition and fees after deducting discounts and allowances])

• S&T-8: Source: Integrated Postsecondary Education Data System (IPEDS), Total Costs: Growth from FY2008 through FY2013, Total Full-Time Equivalent Enrollment Fall 2008 to Fall 2013
  o Total Cost: AVG([Academic support - Current year total])+AVG([Instruction - Current year total])+AVG([Institutional support - Current year total])+AVG([Public service - Current year total])+AVG([Research - Current year total])+AVG([Student services - Current year total])
  o Total Full-Time Equivalent Enrollment: Full-time equivalent fall enrollment

• S&T-9: Source: Integrated Postsecondary Education Data System (IPEDS), Costs: FY2013, FTE: Fall 2013
  o Primary Program Costs Per FTE: (AVG([Instruction - Current year total])+AVG([Research - Current year total])+AVG([Public service - Current year total]))/AVG([Full-time equivalent fall enrollment])
  o Support Cost Per FTE: (AVG([Academic support - Current year total])+AVG([Institutional support - Current year total])+AVG([Student services - Current year total]))/AVG([Full-time equivalent fall enrollment])

• S&T-10: Source: Integrated Postsecondary Education Data System (IPEDS), Costs: FY2013, FTE: Fall 2013
  o Academic Support Per FTE: AVG([Academic support - Current year total])/AVG([Full-time equivalent fall enrollment])
  o Institutional Support Per FTE: AVG([Institutional support - Current year total])/AVG([Full-time equivalent fall enrollment])
  o Student Service Per FTE: AVG([Student services - Current year total])/AVG([Full-time equivalent fall enrollment])

• S&T-11: Source: Integrated Postsecondary Education Data System (IPEDS), Costs: FY2013, FTE: Fall 2013
  o Instruction Per FTE: AVG([Instruction - Current year total])/AVG([Full-time equivalent fall enrollment])
  o Research Per FTE: AVG([Research - Current year total])/AVG([Full-time equivalent fall enrollment])
  o Public Service Per FTE: AVG([Public service - Current year total])/AVG([Full-time equivalent fall enrollment])

September 8-9, 2015
OPEN – GB – INFO 1-109
• S&T-12: Source: Integrated Postsecondary Education Data System (IPEDS), Research – Current Year Total Growth: FY2008 through FY2013

• S&T-13: Research $ and State Appropriations plus Net Tuition $: Growth from FY2008 through FY2013, Total Full-Time Equivalent Enrollment Fall 2008 to Fall 2013
  o Research $ Per FTE: AVG([Research - Current year total])/AVG([Full-time equivalent fall enrollment])
  o State Appropriations plus Net Tuition $ Per FTE: SUM([State appropriations]+[Tuition and fees after deducting discounts and allowances])/AVG([Full-time equivalent fall enrollment])

• S&T-14: Source: Integrated Postsecondary Education Data System (IPEDS), FY2008 - FY2013
  o Research Cost: Research – Current year total
  o Instruction Cost: Instruction – Current year total

  o Full-Time Equivalent Enrollment: Full-time equivalent fall enrollment
  o State Appropriations Plus Net Tuition: SUM([State appropriations]+[Tuition and fees after deducting discounts and allowances])
University of Missouri – St. Louis Technology Figures:

- **UMSL-1**: Source: Integrated Postsecondary Education Data System (IPEDS), FY2013
  - Research Cost: Research – Current year total
  - Instruction Cost: Instruction – Current year total

- **UMSL-2**: Source: Integrated Postsecondary Education Data System (IPEDS), Full-Time Equivalent Enrollment Fall 2013, State Appropriations Plus Net Tuition: FY2013
  - Full-Time Equivalent Enrollment: Full-time equivalent fall enrollment
  - State Appropriations Plus Net Tuition: \( \text{SUM}([\text{State appropriations}] + [\text{Tuition and fees after deducting discounts and allowances}]) \)

  - Full-Time Equivalent Enrollment: Full-time equivalent fall enrollment
  - Total Expenses: \( \text{AVG}([\text{Academic support - Current year total}]) + \text{AVG}([\text{Instruction - Current year total}]) + \text{AVG}([\text{Institutional support - Current year total}]) + \text{AVG}([\text{Public service - Current year total}]) + \text{AVG}([\text{Research - Current year total}]) + \text{AVG}([\text{Student services - Current year total}]) \)
  - Bachelor’s Degrees Awarded: Number of student receiving a Bachelor’s Degree
  - Research Expenditures: Research – Current year total

- **UMSL-4**: Source University of Missouri System-Wide PeopleSoft Finance General Ledger

- **UMSL-5**: Source University of Missouri System-Wide PeopleSoft Finance General Ledger & PeopleSoft Student

- **UMSL-6**: Source: Integrated Postsecondary Education Data System (IPEDS), Full-Time Equivalent Enrollment Fall 2013, State Appropriations Plus Net Tuition: FY2013
  - State Appropriations: \( \text{SUM}([\text{State appropriations}])/\text{Full-time equivalent fall enrollment} \)
  - Net Tuition and Fees: \( \text{SUM}([\text{Tuition and fees after deducting discounts and allowances}])/\text{Full-time equivalent fall enrollment} \)
• UMSL-7: Source: Integrated Postsecondary Education Data System (IPEDS), Undergraduate In-State Net Tuition and Fees: Fall 2010 and Fall 2014
  o Net Tuition and Fees: SUM([Undergraduate In-State Tuition and fees after deducting discounts and allowances])

• UMSL-8: Source: Integrated Postsecondary Education Data System (IPEDS), Total Costs: Growth from FY2008 through FY2013, Total Full-Time Equivalent Enrollment Fall 2008 to Fall 2013
  o Total Cost: AVG([Academic support - Current year total]) + AVG([Instruction - Current year total]) + AVG([Institutional support - Current year total]) + AVG([Public service - Current year total]) + AVG([Research - Current year total]) + AVG([Student services - Current year total])
  o Total Full-Time Equivalent Enrollment: Full-time equivalent fall enrollment

• UMSL-9: Source: Integrated Postsecondary Education Data System (IPEDS), Costs: FY2013, FTE: Fall 2013
  o Primary Program Costs Per FTE: (AVG([Instruction - Current year total]) + AVG([Research - Current year total]) + AVG([Public service - Current year total])) / AVG([Full-time equivalent fall enrollment])
  o Support Cost Per FTE: (AVG([Academic support - Current year total]) + AVG([Institutional support - Current year total]) + AVG([Student services - Current year total])) / AVG([Full-time equivalent fall enrollment])

• UMSL-10: Source: Integrated Postsecondary Education Data System (IPEDS), Costs: FY2013, FTE: Fall 2013
  o Academic Support Per FTE: AVG([Academic support - Current year total]) / AVG([Full-time equivalent fall enrollment])
  o Institutional Support Per FTE: AVG([Institutional support - Current year total]) / AVG([Full-time equivalent fall enrollment])
  o Student Service Per FTE: AVG([Student services - Current year total]) / AVG([Full-time equivalent fall enrollment])

• UMSL-11: Source: Integrated Postsecondary Education Data System (IPEDS), Costs: FY2013, FTE: Fall 2013
  o Instruction Per FTE: AVG([Instruction - Current year total]) / AVG([Full-time equivalent fall enrollment])
  o Research Per FTE: AVG([Research - Current year total]) / AVG([Full-time equivalent fall enrollment])
  o Public Service Per FTE: AVG([Public service - Current year total]) / AVG([Full-time equivalent fall enrollment])

September 8-9, 2015
OPEN – GB – INFO 1-112
• UMSL-12: Source: Integrated Postsecondary Education Data System (IPEDS), Research – Current Year Total Growth: FY2008 through FY2013

• UMSL-13: Research $ and State Appropriations Plus Net Tuition $: Growth from FY2008 through FY2013, Total Full-Time Equivalent Enrollment Fall 2008 to Fall 2013
  
  o Research $ Per FTE: AVG([Research - Current year total])/AVG([Full-time equivalent fall enrollment])
  o State Appropriations Plus Net Tuition $ Per FTE: SUM([State appropriations]+[Tuition and fees after deducting discounts and allowances])/AVG([Full-time equivalent fall enrollment])

• UMSL-14: Source: Integrated Postsecondary Education Data System (IPEDS), FY2008 - FY2013
  
  o Research Cost: Research – Current year total
  o Instruction Cost: Instruction – Current year total

  
  o Full-Time Equivalent Enrollment: Full-time equivalent fall enrollment
  o State Appropriations Plus Net Tuition: SUM([State appropriations]+[Tuition and fees after deducting discounts and allowances])
University of Missouri – Kansas City Figures:

- UMKC-1: Source: Integrated Postsecondary Education Data System (IPEDS), FY2013
  - Research Cost: Research – Current year total
  - Instruction Cost: Instruction – Current year total

  - Full-Time Equivalent Enrollment: Full-time equivalent fall enrollment
  - State Appropriations Plus Net Tuition: SUM([State appropriations]+[Tuition and fees after deducting discounts and allowances])

  - Full-Time Equivalent Enrollment: Full-time equivalent fall enrollment
  - Total Expenses: AVG([Academic support - Current year total])+AVG([Instruction - Current year total])+AVG([Institutional support - Current year total])+AVG([Public service - Current year total])+AVG([Research - Current year total])+AVG([Student services - Current year total])
  - Bachelor’s Degrees Awarded: Number of student receiving a Bachelor’s Degree
  - Research Expenditures: Research – Current year total

- UMKC-4: Source University of Missouri System-Wide PeopleSoft Finance General Ledger

- UMKC-5: Source University of Missouri System-Wide PeopleSoft Finance General Ledger & PeopleSoft Student

- UMKC-6: Source: Integrated Postsecondary Education Data System (IPEDS), Full-Time Equivalent Enrollment Fall 2013, State Appropriations Plus Net Tuition: FY2013
  - State Appropriations: SUM([State appropriations])/Full-time equivalent fall enrollment
  - Net Tuition and Fees: SUM([Tuition and fees after deducting discounts and allowances])/Full-time equivalent fall enrollment

September 8-9, 2015
OPEN – GB – INFO 1-114
• UMKC-7: Source: Integrated Postsecondary Education Data System (IPEDS), Undergraduate In-State Net Tuition and Fees: Fall 2010 and Fall 2014
  o Net Tuition and Fees: SUM([Undergraduate In-State Tuition and fees after deducting discounts and allowances])

• UMKC-8: Source: Integrated Postsecondary Education Data System (IPEDS), Total Costs: Growth from FY2008 through FY2013, Total Full-Time Equivalent Enrollment Fall 2008 to Fall 2013
  o Total Cost: AVG([Academic support - Current year total])+AVG([Instruction - Current year total])+AVG([Institutional support - Current year total])+AVG([Public service - Current year total])+AVG([Research - Current year total])+AVG([Student services - Current year total])
  o Total Full-Time Equivalent Enrollment: Full-time equivalent fall enrollment

• UMKC-9: Source: Integrated Postsecondary Education Data System (IPEDS), Costs: FY2013, FTE: Fall 2013
  o Primary Program Costs Per FTE: (AVG([Instruction - Current year total])+AVG([Research - Current year total])+AVG([Public service - Current year total]))/AVG([Full-time equivalent fall enrollment])
  o Support Cost Per FTE: (AVG([Academic support - Current year total])+AVG([Institutional support - Current year total])+AVG([Student services - Current year total]))/AVG([Full-time equivalent fall enrollment])

• UMKC-10: Source: Integrated Postsecondary Education Data System (IPEDS), Costs: FY2013, FTE: Fall 2013
  o Academic Support Per FTE: AVG([Academic support - Current year total])/AVG([Full-time equivalent fall enrollment])
  o Institutional Support Per FTE: AVG([Institutional support - Current year total])/AVG([Full-time equivalent fall enrollment])
  o Student Service Per FTE: AVG([Student services - Current year total])/AVG([Full-time equivalent fall enrollment])

• UMKC-11: Source: Integrated Postsecondary Education Data System (IPEDS), Costs: FY2013, FTE: Fall 2013
  o Instruction Per FTE: AVG([Instruction - Current year total])/AVG([Full-time equivalent fall enrollment])
  o Research Per FTE: AVG([Research - Current year total])/AVG([Full-time equivalent fall enrollment])
  o Public Service Per FTE: AVG([Public service - Current year total])/AVG([Full-time equivalent fall enrollment])
• UMKC-12: Source: Integrated Postsecondary Education Data System (IPEDS), Research – Current Year Total Growth: FY2008 through FY2013

• UMKC-13: Research $ and State Appropriations Plus Net Tuition $: Growth from FY2008 through FY2013, Total Full-Time Equivalent Enrollment Fall 2008 to Fall 2013
  
  o Research $ Per FTE: AVG([Research - Current year total])/AVG([Full-time equivalent fall enrollment])
  
  o State Appropriations Plus Net Tuition $ Per FTE: SUM([State appropriations]+[Tuition and fees after deducting discounts and allowances])/AVG([Full-time equivalent fall enrollment])

• UMKC-14: Source: Integrated Postsecondary Education Data System (IPEDS), FY2008 - FY2013
  
  o Research Cost: Research – Current year total
  
  o Instruction Cost: Instruction – Current year total

  
  o Full-Time Equivalent Enrollment: Full-time equivalent fall enrollment
  
  o State Appropriations Plus Net Tuition: SUM([State appropriations]+[Tuition and fees after deducting discounts and allowances])
University of Missouri (MU) Figures:

- MU-1: Source: Integrated Postsecondary Education Data System (IPEDS), FY2013
  - Research Cost: Research – Current year total
  - Instruction Cost: Instruction – Current year total

  - Full-Time Equivalent Enrollment: Full-time equivalent fall enrollment
  - State Appropriations Plus Net Tuition: \( \text{SUM(\{State appropriations\}+\{Tuition and fees after deducting discounts and allowances\})} \)

  - Full-Time Equivalent Enrollment: Full-time equivalent fall enrollment
  - Total Expenses: \( \text{AVG(\{Academic support - Current year total\})+AVG(\{Instruction - Current year total\})+AVG(\{Institutional support - Current year total\})+AVG(\{Public service - Current year total\})+AVG(\{Research - Current year total\})+AVG(\{Student services - Current year total\})} \)
  - Bachelor’s Degrees Awarded: Number of student receiving a Bachelor’s Degree
  - Research Expenditures: Research – Current year total

- MU-4: Source University of Missouri System-Wide PeopleSoft Finance General Ledger

- MU-5: Source University of Missouri System-Wide PeopleSoft Finance General Ledger & PeopleSoft Student

- MU-6: Source: Integrated Postsecondary Education Data System (IPEDS), Full-Time Equivalent Enrollment Fall 2013, State Appropriations Plus Net Tuition: FY2013
  - State Appropriations: \( \text{SUM(\{State appropriations\})/Full-time equivalent fall enrollment} \)
  - Net Tuition and Fees: \( \text{SUM(\{Tuition and fees after deducting discounts and allowances\})/Full-time equivalent fall enrollment} \)
• MU-7: Source: Integrated Postsecondary Education Data System (IPEDS), Undergraduate In-State Net Tuition and Fees: Fall 2010 and Fall 2014
  o Net Tuition and Fees: SUM([Undergraduate In-State Tuition and fees after deducting discounts and allowances])

• MU-8: Source: Integrated Postsecondary Education Data System (IPEDS), Total Costs: Growth from FY2008 through FY2013, Total Full-Time Equivalent Enrollment Fall 2008 to Fall 2013
  o Total Cost: AVG([Academic support - Current year total])+AVG([Instruction - Current year total])+AVG([Institutional support - Current year total])+AVG([Public service - Current year total])+AVG([Research - Current year total])+AVG([Student services - Current year total])
  o Total Full-Time Equivalent Enrollment: Full-time equivalent fall enrollment

• MU-9: Source: Integrated Postsecondary Education Data System (IPEDS), Costs: FY2013, FTE: Fall 2013
  o Primary Program Costs Per FTE: (AVG([Instruction - Current year total])+AVG([Research - Current year total])+AVG([Public service - Current year total]))/AVG([Full-time equivalent fall enrollment])
  o Support Cost Per FTE: (AVG([Academic support - Current year total])+AVG([Institutional support - Current year total])+AVG([Student services - Current year total]))/AVG([Full-time equivalent fall enrollment])

• MU-10: Source: Integrated Postsecondary Education Data System (IPEDS), Costs: FY2013, FTE: Fall 2013
  o Academic Support Per FTE: AVG([Academic support - Current year total])/AVG([Full-time equivalent fall enrollment])
  o Institutional Support Per FTE: AVG([Institutional support - Current year total])/AVG([Full-time equivalent fall enrollment])
  o Student Service Per FTE: AVG([Student services - Current year total])/AVG([Full-time equivalent fall enrollment])

• MU-11: Source: Integrated Postsecondary Education Data System (IPEDS), Costs: FY2013, FTE: Fall 2013
  o Instruction Per FTE: AVG([Instruction - Current year total])/AVG([Full-time equivalent fall enrollment])
  o Research Per FTE: AVG([Research - Current year total])/AVG([Full-time equivalent fall enrollment])
  o Public Service Per FTE: AVG([Public service - Current year total])/AVG([Full-time equivalent fall enrollment])
• MU-12: Source: Integrated Postsecondary Education Data System (IPEDS), Research – Current Year Total Growth: FY2008 through FY2013

• MU-13: Research $ and State Appropriations Plus Net Tuition $: Growth from FY2008 through FY2013, Total Full-Time Equivalent Enrollment Fall 2008 to Fall 2013
  o Research $ Per FTE: AVG([Research - Current year total])/AVG([Full-time equivalent fall enrollment])
  o State Appropriations Plus Net Tuition $ Per FTE: SUM([State appropriations]+[Tuition and fees after deducting discounts and allowances])/AVG([Full-time equivalent fall enrollment])

• MU-14: Source: Integrated Postsecondary Education Data System (IPEDS), FY2008 - FY2013
  o Research Cost: Research – Current year total
  o Instruction Cost: Instruction – Current year total

  o Full-Time Equivalent Enrollment: Full-time equivalent fall enrollment
  o State Appropriations Plus Net Tuition: SUM([State appropriations]+[Tuition and fees after deducting discounts and allowances])