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Introduction

The Goals and Actions document, adopted by the University of Maine System (UMS) Board of Trustees (BOT) on January 23, 2012, includes a directive regarding the alignment of funding with performance outcomes (Directive 1.e). Specifically, this directive charges the Board’s Finance and Facilities Committee with undertaking a review of performance funding models and bringing recommendations to the full Board of Trustees.

In response to this directive, System staff circulated a Request for Qualifications (RFQ) seeking an organization to provide assistance in the design of such a model. The National Center for Higher Education Management Systems (NCHEMS) was one of several organizations that submitted a proposal in response to this RFQ and was selected to provide this assistance.

This report:

- Presents the outcomes-based funding model recommended to the Board of Trustees;
- Describes the context in which the model was developed;
- Indicates the rationale for selection of the outcomes that are linked to funding in the model;
- Describes the process by which the model was developed;
- Presents recommendations regarding implementation of the model.

The design being recommended to the Board is an interactive computer tool that evolved over the course of the project and was used throughout the design development process to test the impacts of alternative model formulations. This computer tool has been submitted to the UMS System Office as a work product of the project.

I. Context

Historically, the UMS has not employed a resource allocation mechanism that reflects a value beyond maintenance of the current allocation, i.e., each institution continues to receive annually its historic share of the overall State E&G appropriation. The model presented in this report is a step – but only a small step – away from the historic practice. It allocates a percentage of the State appropriated dollars on the basis of outcomes produced; however, the majority of State funds will continue to be allocated on the same pro rata basis as has been the case for the past 40 years. And nothing about the funding model described herein affects – or is contingent upon – decisions regarding either tuition or student financial aid policies and practices.

While the focus of this report is on outcomes funding, it must be noted that this component of the financing mechanism for UMS institutions is a relatively minor component of a university’s overall operating budget.

The following graphic shows the total sources of revenue including a shift of 5% of the E&G appropriation from the historical allocation to the outcomes-based allocation.
Assuming all other revenue sources remain constant, the following graphic illustrates the outcomes-based allocation in six years if it increased by 5% per year.

Since the project objective is to reward institutions for producing high priority outcomes – a key first question becomes “What outcomes should be rewarded in any proposed outcomes-based funding model?” Although Maine does not have a “public agenda” that articulates a broadly accepted set of higher education priorities, by synthesizing statements from the Board of Trustees Goals and Actions document and from the New Challenges, New Directions Task Force Report, the following priorities clearly emerge.
Priorities:

- Increase the education attainment levels of the working-age population of the State
- Meet the workforce needs of Maine employers
- Contribute to the economic development of the State
- Improve the productivity of UMS institutions

The following observations about Maine add context to these goals:

- While the education level of Maine’s adult population with at least a two year degree is slightly above the national average (38.8% versus 38.3% nationally), Maine ranks lowest among New England states (Massachusetts – 50.4%, Connecticut – 45.8%, Vermont – 44.0%, New Hampshire 45.8%, and Rhode Island - 41.2%). *Lumina Foundation Data*

- Projections by highly respected labor economists at the Georgetown Center on Education and the Workforce indicate that by 2018 59% of the jobs in the Maine economy will require some level of education beyond high school.

- Because of the declining numbers of K-12 students in Maine, increasing the level of education attainment of the workforce to the levels required cannot be accomplished by successfully educating additional recent high school graduates. Even if students graduate from high school, attend college, and graduate from college at rates equal to the best-performing states in the country, Maine cannot reach required education attainment levels. Significant numbers of adults will have to be brought back into the postsecondary education system to acquire meaningful credentials.

- The largest number of high-wage jobs in Maine is in the education and health care industries.

- The Governor and Legislature’s focus on economic development in energy and other industries that would employ more individuals in high-wage, technical fields makes STEM (Science, Technology, Engineering and Mathematics) degrees valuable and a high priority for the System.

- The median household income in Maine rose to $46,933 in 2010, but still lags behind the national figure of $50,831, according to the U.S. Census Bureau.

- Maine’s General Fund revenue base continues to remain flat, with little revenue growth expected between now and FY17. Unless the economy of the state diversifies and expands, it is unlikely that there will be additional revenues for higher education available from State coffers. A focus on enhanced institutional productivity is a natural consequence of these conditions.

All of these factors/observations reinforce the appropriateness of the list of priorities presented previously.

II. Development Process

Members of the Outcomes Based Review Team are:

Rebecca Wyke, Vice Chancellor for Finance and Administration; Kate Foster, President, University of Maine at Farmington; Miriam White, Director of Budget, University of Maine System; and Ryan Low, Executive Director of Governmental and External Affairs.
Members of the Steering Committee for the Administrative Review/Performance Based Funding Model are:

Chancellor James Page; Vice Chancellor Rebecca Wyke; Trustee Karl Turner; President Cindy Huggins, University of Maine at Machias; and President Paul Ferguson, University of Maine.

The process by which the recommendations presented in this report were developed was both iterative and consultative. Ideas were presented and reviewed by three key constituencies – Presidents, Chief Academic Officers (CAOs) and Chief Financial Officers (CFOs), as well as the Steering Committee. Recommendations were continually refined on the basis of the feedback received.

More specifically, the process was as follows:

a. The Review Team and NCHEMS staff reviewed relevant documents and materials, most importantly the Board of Trustees’ Goals and Actions document and New Challenges, New Directions Task Force Report and developed a set of goals that could serve as a foundation on which an outcomes-based model could be developed.

b. NCHEMS staff and the Review Team met to discuss how outcomes-based funding models have been designed and implemented in other states and reviewed the set of goals derived from the materials gathered.

c. The Steering Committee provided guidance, including specific direction for the economic development goal – any metrics employed should reflect direct contribution to Maine’s economy. As a result, a premium was recommended for research that could be explicitly tied to development of the Maine economy.

d. Based on these discussions, NCHEMS staff:
   - Identified data to be provided by UMS and in some cases, the campuses;
   - Created an interactive computer model that allowed investigation of different constructs of an outcomes based funding model.

e. Review Team and NCHEMS staff met in person and by phone, to discuss the model and made an ongoing series of model modifications to reflect the most recent input.

f. NCHEMS staff met with the university presidents, CAOs and CFOs to discuss basic principles of outcomes-based funding and the design parameters as the model was being developed for UMS.

g. Review Team made site visits to each of the campuses to present the model in its current state of development and gathered both positive and constructive feedback resulting in further modifications.

h. NCHEMS staff presented general information on outcomes-based funding to the Finance and Facilities Committee of the Board of Trustees on November 4, 2012. The goals identified as foundational to the model and the rationale for their selection was discussed with the Board. There were no suggestions for changes to the list of goals, metrics and other parameters presented.

i. The Review Team offered preliminary recommendations for public comment on the ThinkMissionExcellence website and received feedback via an online survey tool, which was subsequently reviewed.
The Review Team developed a final set of recommendations regarding the design and implementation of an outcomes-based funding model for UMS.

The Review Team presented these recommendations to the President’s Council, the Steering Committee, and the Finance and Facilities Committee of the Board.

### III. The Model Recommended

The Review Team recommends an outcomes-based funding component as part of the overall approach to the allocation of State E&G appropriations that has the following characteristics and parameters:

a. For fiscal year 2013-14, the funds designated for distribution through the outcomes mechanism will equal 5% of the 2013-14 State appropriation to UMS for E&G support of System institutions. Additionally, any new funding amounts in excess of the 2013-14 level will be distributed through the outcomes based allocation mechanism. In the first year, the remaining 95% of State E&G appropriated funds will be allocated on the same pro rata basis as has been the historical practice in prior years.

b. To minimize the unintended consequences of any anomalies in a given year, while also rewarding institutions in a timely manner for achievements, the model utilized three rolling years of data. Currently the model incorporates the three most recent years of data available (FY2010-FY2012). The Review Team also recommends that all data used in the model be UMS data extracted directly from MaineStreet.

c. The model is designed to promote institutional achievements to the priority areas enumerated earlier in this report. The priorities and recommendations regarding the associated metrics are as follows:

1. Increase the education attainment levels of the working-age population of the state.

   - Outcomes to be rewarded are credentials granted during the fiscal year, such as:
     - Industry recognized certificates — The recommendation requests that the Chief Academic Officers establish a process to review all certificates and recommend to the President’s Council what credentials would qualify as “industry recognized.” An initial list is included in the report.
     - Associates degrees
     - Bachelor’s degrees
     - Advanced degrees

   Additional points are assigned to Associate’s and Bachelor’s degrees awarded to:

   Adults — individuals who are 30 years of age or older when the degree is awarded. This incentive reinforces the Board’s priority to better serve adults and recognizes the reality that Maine cannot reach competitive educational attainment levels solely by educating more recent high school graduates.

   Students who transfer 30 or more credits into the degree granting institution — this promotes accepting transfers from community colleges
and other institutions, as well as from other campuses within the UMS. Only the degree awarding institution receives the premium, except in the case of “feeder programs” which are being considered by the Review Team.

- Intermediate outcomes rewarded are the number of undergraduate students who have accumulated:
  - 30-59 credits by the end of the spring semester
  - 60-89 credits by the end of the spring semester

This outcome is made a part of the allocation model in recognition of the period of time it takes to move a student through the educational process to the point of graduation – retention can be improved in a shorter period of time, completion takes longer. It is intended that this credit accumulation component be eliminated after three years with the weights being reallocated to the degree completion metric.

2) Meet the workforce needs of Maine employers:

- Premium points are awarded for degrees produced in the following fields:
  - STEM degrees include 12 academic programs within the Science, Technology, Engineering, and Mathematics fields, sorted by Classification of Instructional Program codes:
    - 1 Agriculture, agriculture operations
    - 3 Natural resources and conservation
    - 4 Architecture and related services
    - 11 Computer and information sciences
    - 14 Engineering
    - 15 Engineering technologies/technicians
    - 26 Biological and biomedical sciences
    - 27 Mathematics and statistics
    - 29 Military technologies
    - 30 Multi/interdisciplinary studies (marine sciences)
    - 40 Physical sciences
    - 41 Science technologies/technicians
  - Allied Health
    - 51 Health professions and related programs
  - Other high priority fields – to be determined. Selection of any additional fields will be made in consultation with the State Departments of Labor and Economic and Community Development using state workforce data.
A field to be determined by each institution to reflect a high priority regional – rather than statewide – need.

The recommendation suggests that the Chief Academic Officers establish a process to review STEM and Allied Health programs, as well as other high priority fields – both regional and statewide – and recommend to Presidents’ Council which programs and fields would qualify for additional points, as explained further in this document.

3) Contribute to the State’s economic development. This component of the model as currently constructed applies only to UMaine and USM. The metrics that drive the allocation are:

- Number of research grants and contracts received during the year, with additional points being given for awards involving Maine partners.
- Dollar value of research grants and contracts received during the year with additional points given for awards involving Maine partners.

4) Improve the productivity of UMS institutions.

- Productivity is defined as number of degrees awarded per $100,000 of net tuition and fee revenues and State E&G appropriations scaled by matriculated FTE.

With the exception of the productivity metric, the entries into the allocation model are actual “counts” for numbers of degrees awarded, numbers of students accumulating 30-59 credits, numbers of research grants, etc. The productivity metric is in an efficiency ratio of output per input.

The model allows for different weights to be given to these counts. The points suggested by the Review Team are as follows:

<table>
<thead>
<tr>
<th>Degrees Awarded</th>
<th>Recommended Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry-Recognized Certificate (IRC)</td>
<td>0.25</td>
</tr>
<tr>
<td>Associate’s Degree</td>
<td>0.50</td>
</tr>
<tr>
<td>Bachelor’s Degree</td>
<td>1.00</td>
</tr>
<tr>
<td>Advanced Degree</td>
<td>1.25</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Priority Populations</th>
<th>Recommended Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults age 30 or over when degree awarded</td>
<td>0.40</td>
</tr>
<tr>
<td>Transfers with 30 credit hours</td>
<td>0.40</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Credit Accumulation</th>
<th>Recommended Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>30-59 credit hours accumulated</td>
<td>0.25</td>
</tr>
<tr>
<td>60-89 credit hours accumulated</td>
<td>0.50</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Priority Fields</th>
<th>Recommended Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Associate’s</td>
<td>0.2</td>
</tr>
<tr>
<td>Bachelor’s</td>
<td>0.4</td>
</tr>
<tr>
<td>Master’s</td>
<td>0.6</td>
</tr>
<tr>
<td>Doctoral</td>
<td>0.8</td>
</tr>
</tbody>
</table>
An Outcomes-Based Funding Model for the University of Maine System

<table>
<thead>
<tr>
<th>Institution</th>
<th>Completion</th>
<th>Research &amp; Development</th>
<th>Productivity</th>
<th>Credit Accumulation</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Maine</td>
<td>45%</td>
<td>30%</td>
<td>18%</td>
<td>7%</td>
<td>100%</td>
</tr>
<tr>
<td>UMaine - Augusta</td>
<td>65%</td>
<td>0%</td>
<td>25%</td>
<td>10%</td>
<td>100%</td>
</tr>
<tr>
<td>UMaine - Farmington</td>
<td>65%</td>
<td>0%</td>
<td>25%</td>
<td>10%</td>
<td>100%</td>
</tr>
<tr>
<td>UMaine - Fort Kent</td>
<td>65%</td>
<td>0%</td>
<td>25%</td>
<td>10%</td>
<td>100%</td>
</tr>
<tr>
<td>UMaine - Machias</td>
<td>65%</td>
<td>0%</td>
<td>25%</td>
<td>10%</td>
<td>100%</td>
</tr>
<tr>
<td>UMaine - Presque Isle</td>
<td>65%</td>
<td>0%</td>
<td>25%</td>
<td>10%</td>
<td>100%</td>
</tr>
<tr>
<td>University of Southern Maine</td>
<td>61%</td>
<td>5%</td>
<td>24%</td>
<td>10%</td>
<td>100%</td>
</tr>
</tbody>
</table>
Because the University of Maine and University of Southern Maine are primary research institutions, their outcome allocation incorporates research and development activity. Metric weights for completion, productivity, and credit accumulation remain proportional to the metric weight for the 5 other institutions.

- Once the total point values have been calculated for each metric by institution, the metric weight is applied to derive the weighted points by metric per institution. A step by step example of the process is included in the documentation.

IV. Recommendations Regarding Implementation

The prior section of this report describes the basic design of the allocation model. The Review Team recommends the following approach to implementing the model:

- The outcomes-based funding pool will be 5% of the base year State E&G appropriation in year one of the implementation and will be increased 5% per year until the pool equals 30% of the base year E&G appropriation in year six. This means that the size of the outcomes-based funding pool, assuming a flat State appropriation, would be as follows:

  Year 1  $7,773,892  
  Year 2  $15,547,784  
  Year 3  $23,321,676  
  Year 4  $31,095,568  
  Year 5  $38,869,460  
  Year 6  $46,643,352  

In addition, any funds appropriated to the UMS in excess of the base year allocation will be added to the outcomes-based funding pool and distributed in accordance with the outcome allocation.

It is important again to note that the numbers above assume the current level of appropriation from the State of Maine remains at FY13 levels, pre-curtailment. Decisions made by the State Legislature around curtailment and FY14-15 funding levels will impact the size of the pool.

- A stop-loss provision of 2% will be applied in the first year, increasing by 0.5% each year and phasing out after the fourth year. This means that for the first year, for all institutions, the total E&G appropriation can be no less than 98% of the prior year’s allocation, again assuming a flat State appropriation across two consecutive years.

- The Vice Chancellor for Finance and Administration will be responsible for reviewing the model on an annual basis and making recommendations for any material modifications that might be necessary to the Board of Trustees.
### Outcomes Based Funding Model – Dashboard

**Web link to online model:**

<table>
<thead>
<tr>
<th>POINTS</th>
<th>METRIC WEIGHTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Productivity</td>
<td>UMA, UMF, UMFK, UMM, UMaine, USM</td>
</tr>
<tr>
<td>Research &amp; Development</td>
<td>65% 46% 62%</td>
</tr>
<tr>
<td>Per $100K of Revenue</td>
<td></td>
</tr>
<tr>
<td># of Contracts</td>
<td></td>
</tr>
<tr>
<td>Maine Partners Premium per $100K</td>
<td></td>
</tr>
<tr>
<td>Credit Accumulation (Undergraduates)</td>
<td>10% 7% 10%</td>
</tr>
<tr>
<td>Degree Priority Populations - Premiums</td>
<td>Research &amp; Development</td>
</tr>
<tr>
<td></td>
<td>0% 30% 5%</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Industry-Recognized Certificate</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Associate Degree</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelor Degree</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Advanced Degree</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Degree Priority Fields - Premiums</td>
<td>Stop-Loss</td>
</tr>
<tr>
<td></td>
<td>-2.0%</td>
</tr>
</tbody>
</table>

**Allocate new appropriation directly to Outcomes? (Y/N)**
Y

**Total E&G State Appropriations (FY 14)**
$155,477,841

<table>
<thead>
<tr>
<th>Base Funding Allocation</th>
<th>AmountAllocated:</th>
<th>$147,703,949</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outcomes Funding Allocation</td>
<td>AmountAllocated:</td>
<td>$7,773,892</td>
</tr>
</tbody>
</table>

**Weights must equal 100%**

**Reset All Values to Defaults**
V. Summary / Conclusions:
The University of Maine System plays a vital role in the State’s economy—as higher education is key to Maine’s economic development. The System must be nimble and flexible – changing to respond to the state’s workforce needs.

In fact, in his September 2011 letter to the Board of Trustees, Governor Paul LePage specifically suggested the System look at reforms related to resource allocation and increased productivity.

Across the country, policymakers are focused—more than ever—on college completion. At a gathering last year, leaders at the National Governors Association called on the higher education institutions across the country to be more accountable to taxpayers. Washington Governor Christine Gregoire, chair of the governors group, noted, “Education is absolutely key in putting America back to work,” and added that making sure people are getting the education and training needed to compete in the global economy is, “one of the most important things we need to consider as governors.”

The recommendations included in this report would allocate a portion of State E&G appropriation through a model that rewards universities for achieving positive outcomes. This step, coupled with other initiatives currently under way and those planned in the coming months, will position the University of Maine System to pro-actively meet the ever-changing needs of the State of Maine and its citizens.
OUTCOMES-BASED FUNDING MODEL (OBFM)
DOCUMENTATION

I. Data

The following student data utilized in the OBFM calculations were extracted from MaineStreet Campus Solutions (CS):

• Degrees Awarded
• Priority Fields (Classification of Instructional Programs codes)
• Transfer Credits
• Age at date of undergraduate degree completion
• Credit Accumulation
• Matriculated Student Full-time Equivalents (FTE)

Net tuition & fee revenue and State appropriation data were extracted from MaineStreet Financials and other UMS accounting documentation.

To minimize the unintended consequences of any anomalies in a given year, while also rewarding institutions in a timely manner for achievements, the model utilized three rolling years of data. Currently the model incorporates the three most recent years of data available (FY2010-FY2012).

II. Dashboard

The Dashboard currently contains the OBFM Review Team recommendations for the percentage of appropriation to distribute through the model, point values, metric weights, and the stop loss percentage. The Dashboard allows the user to perform what-if analyses by changing any of these variables in the model (yellow-highlighted cells) to analyze the impact on the distribution of appropriation.

III. Outcomes Funding Allocation

The model allows the user to input the percentage of E&G appropriation that will be distributed through the OBFM - currently the OBFM Review Team recommendation is 5%. This means that 5% of the total State E&G appropriation (excluding debt service and MEIF) will be placed in the Outcomes Funding Pool and then distributed based on the weighted point value of each metric.

IV. Points

A) Completion - Degrees Awarded – For each degree awarded in the previous three years (currently Summer 2009 through Spring 2012 or Terms 0930 through 1220), points are awarded based on the OBFM Review Team recommendation as follows:
### Degrees Awarded

<table>
<thead>
<tr>
<th>Degrees Awarded</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry-Recognized Certificate (IRC)</td>
<td>0.25</td>
</tr>
<tr>
<td>Associate’s Degree</td>
<td>0.50</td>
</tr>
<tr>
<td>Bachelor’s Degree</td>
<td>1.00</td>
</tr>
<tr>
<td>Advanced Degree</td>
<td>1.25</td>
</tr>
</tbody>
</table>

If a student receives multiple degrees in one academic year, points will be awarded for each degree.

The National Center for Higher Education Management Systems (NCHEMS) reviewed the UMS data for certificates awarded in FY2010-FY2012 and recommended the certificates that should be considered “industry recognized” (see Appendix A). The Chief Academic Officers (CAOs) will be reviewing all certificates and recommending to the Presidents’ Council what credentials qualify as industry-recognized certificates. Presidents’ Council will review and comment; the Chancellor will make the final determination.

1. **Adults & Transfers** – Premium points are awarded for each Associate’s or Bachelor’s degree awarded to an adult (defined as age 30 or older when degree is conferred) or for each Associate’s or Bachelor’s degree awarded to a student with 30 or more accepted transfer credits (the degree-awarding institution receives the premium). A double premium will not be awarded if a student meets both the adult and transfer criteria. The OBFM Review Team point recommendations are:

<table>
<thead>
<tr>
<th>Population</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults age 30 or over when degree awarded</td>
<td>0.40</td>
</tr>
<tr>
<td>Degree awarded with 30 or more transfer credits</td>
<td>0.40</td>
</tr>
</tbody>
</table>

To determine the age of the student, a query was developed that utilizes the field DEGRAGE which calculates the student’s age at degree completion by using the degree date and the birth date in CS.

In CS, there are three fields where transfer credits are recorded:

1. “TOT_TRNSFR” where credits awarded are posted for coursework;
2. “TOT_TEST_CREDIT” where credits awarded are posted for test performance, including but not limited to placement exams, prior learning assessments, etc.;
3. “TOT_OTHER” where credits awarded are posted for “all” other reasons including but not limited to prior learning, military experience, etc.

Premium points for transfer credits are awarded only when the value in “TOT_TRNSFR” equals or exceeds 30 credit hours when the degree is awarded. Credits awarded in (ii) and (iii) above are not included in the criterion to receive premium points.

2. **Priority Fields** – Premium points are awarded for each STEM and Allied Health degree. These degrees are currently identified by the CIP codes included in the January 26, 2012
An Outcomes-Based Funding Model for the University of Maine System

report, STEM in the University of Maine System (see excerpt - Appendix B). The CAOs will recommend to the Presidents’ Council which degrees qualify as STEM or Allied Health. The Presidents’ Council will review and comment; the Chancellor will make the final determination. The OBFM Review Team point recommendations are:

<table>
<thead>
<tr>
<th>Priority Fields</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Associate’s</td>
</tr>
<tr>
<td>STEM</td>
<td>0.2</td>
</tr>
<tr>
<td>Allied Health</td>
<td>0.2</td>
</tr>
<tr>
<td>Other Statewide Needs (TBD)</td>
<td>0.2</td>
</tr>
<tr>
<td>Regional Need (by campus TBD)</td>
<td>0.2</td>
</tr>
</tbody>
</table>

Regional and Other Statewide needs have yet to be determined

B) Productivity – This metric is defined as the number of IRCs and degrees awarded per $100K of net tuition & fee revenue and State appropriation. This metric utilizes the point values for IRCs and degrees awarded in Section IV-A Completion - Degrees Awarded on page 1. The net tuition & fee revenue is derived from each institution’s financial statements with an adjustment for financial aid related to Education and General (E&G) activities as calculated by the UMS Director for Accounting. State appropriation is based on data from the Director of Budgeting and includes only E&G appropriation (excludes Debt Service and MEIF). The resulting score is then scaled by the average number of matriculated FTE at each institution.

C) Credit Accumulation – In recognition of the time necessary to increase the number of degrees awarded, this metric is designed to reward institutions based on the number of undergraduate students who have attained certain milestones in credit accumulation. (Non-credit courses are excluded.) The OBFM Review Team recommends that this metric phase out after three years and the weight for this metric shift to the Completion Metric. The OBFM Review Team point recommendations are:

<table>
<thead>
<tr>
<th>Credit Accumulation</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>30-59 credit hours accumulated</td>
<td>0.25</td>
</tr>
<tr>
<td>60-89 credit hours accumulated</td>
<td>0.50</td>
</tr>
</tbody>
</table>

To calculate credit accumulation, data is extracted from CS. This metric applies to only undergraduate students (non-degree or matriculated) who are considered actively enrolled at the end of the spring semester, and the accumulated credit hours are based on an eligible student’s total number of credit hours at the end of the spring semester. These cumulative credit hours would also include any transfer credits for which academic credit was received.

D) Research & Development – The current model contains data provided by the USM Office of Sponsored Programs and the UMaine Department of Industrial Cooperation and the Sponsored Programs Division. This data consists of the number and dollar value of grants & contracts awarded
with premium points being given for awards involving Maine entities. By implementation, the goal is that research & development data will be derived from MaineStreet Financials based on actual revenue and the associated number of contracts. The OBFM Review Team point recommendations are:

<table>
<thead>
<tr>
<th>Research &amp; Development</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>(based on actual dollars received)</td>
<td></td>
</tr>
<tr>
<td>Per $100K of Revenue</td>
<td>1.00</td>
</tr>
<tr>
<td>Number of Contracts</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Premium points are awarded for research & development activities with Maine entities:

<table>
<thead>
<tr>
<th>Research &amp; Development</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>(based on actual dollars received)</td>
<td></td>
</tr>
<tr>
<td>Maine Partners Premium per $100K of Revenue</td>
<td>0.50</td>
</tr>
<tr>
<td>Maine Partners Premium per Number of Contracts</td>
<td>0.50</td>
</tr>
</tbody>
</table>

V. Metric Weights and Appropriation Allocations

The Metric Weights serve a dual purpose. First, these percentages are applied to the Outcomes-Based Appropriation Allocation to develop the Outcome Funding Pool by metric. Secondly, these percentages are applied to the total points for each metric by institution to distribute the Outcome Funding Pool. The OBFM Review Team recommendation for each metric weight is:

<table>
<thead>
<tr>
<th>Metric (3 rolling years of data)</th>
<th>UMA, UMF, UMFK, UMM, &amp; UMPI</th>
<th>UMaine</th>
<th>USM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Completion Metric</td>
<td>65%</td>
<td>45%</td>
<td>61%</td>
</tr>
<tr>
<td>2. Productivity Metric</td>
<td>25%</td>
<td>18%</td>
<td>24%</td>
</tr>
<tr>
<td>3. Credit Accumulation Metric (phase out after three years)</td>
<td>10%</td>
<td>7%</td>
<td>10%</td>
</tr>
<tr>
<td>4. Research &amp; Development Metric</td>
<td>N/A</td>
<td>30%</td>
<td>5%</td>
</tr>
</tbody>
</table>

Because UMaine and USM are the primary research institutions, their outcome allocation will also incorporate research and development activity. UMaine and USM’s metric weights for completion, productivity, and credit accumulation will change if the Research & Development metric weight is changed; however, UMaine and USM’s metric weights for completion, productivity, and credit accumulation will remain proportional to these metric weights for the other 5 institutions.
A) Outcomes Funding Pool - The metric weights are first utilized to create the Outcomes Funding Pool by metric which will later be distributed based on the percentage of weighted points. As shown below, 5% of the E&G appropriation is placed in the Outcome Funding Pool based on the recommended metric weights.

<table>
<thead>
<tr>
<th>Institution</th>
<th>Completion</th>
<th>Research &amp; Development</th>
<th>Productivity</th>
<th>Credit Accumulation</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Maine</td>
<td>45%</td>
<td>30%</td>
<td>18%</td>
<td>7%</td>
<td>100%</td>
</tr>
<tr>
<td>UMaine - Augusta</td>
<td>65%</td>
<td>0%</td>
<td>25%</td>
<td>10%</td>
<td>100%</td>
</tr>
<tr>
<td>UMaine - Farmington</td>
<td>65%</td>
<td>0%</td>
<td>25%</td>
<td>10%</td>
<td>100%</td>
</tr>
<tr>
<td>UMaine - Fort Kent</td>
<td>65%</td>
<td>0%</td>
<td>25%</td>
<td>10%</td>
<td>100%</td>
</tr>
<tr>
<td>UMaine - Machias</td>
<td>65%</td>
<td>0%</td>
<td>25%</td>
<td>10%</td>
<td>100%</td>
</tr>
<tr>
<td>UMaine - Presque Isle</td>
<td>65%</td>
<td>0%</td>
<td>25%</td>
<td>10%</td>
<td>100%</td>
</tr>
<tr>
<td>University of Southern Maine</td>
<td>61%</td>
<td>5%</td>
<td>24%</td>
<td>10%</td>
<td>100%</td>
</tr>
</tbody>
</table>

B) Distribution of Funds - Once the total point values have been calculated for each metric by institution, then the metric weight is applied to derive the weighted points by metric by institution.

In the example below, UMaine received 8,669 points for degrees awarded (including premium points for adults, transfers, and priority fields). After applying the Completion Metric weight of 45%, UMaine has 3,944 weighted degree points. (Note: calculations in the actual model are not rounded)
### Total Points - 3 years

<table>
<thead>
<tr>
<th>Institution</th>
<th>Completion</th>
<th>Research &amp; Development</th>
<th>Productivity</th>
<th>Credit Accumulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Maine</td>
<td>8,669</td>
<td>5,277</td>
<td>13,384</td>
<td>4,126</td>
</tr>
<tr>
<td>UMaine - Augusta</td>
<td>2,232</td>
<td>-</td>
<td>5,240</td>
<td>2,114</td>
</tr>
<tr>
<td>UMaine - Farmington</td>
<td>1,465</td>
<td>-</td>
<td>3,370</td>
<td>1,030</td>
</tr>
<tr>
<td>UMaine - Fort Kent</td>
<td>703</td>
<td>-</td>
<td>1,235</td>
<td>311</td>
</tr>
<tr>
<td>UMaine - Machias</td>
<td>288</td>
<td>-</td>
<td>534</td>
<td>256</td>
</tr>
<tr>
<td>UMaine - Presque Isle</td>
<td>899</td>
<td>-</td>
<td>1,904</td>
<td>435</td>
</tr>
<tr>
<td>University of Southern Maine</td>
<td>6,830</td>
<td>2,114</td>
<td>12,672</td>
<td>3,065</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>21,084</strong></td>
<td><strong>7,391</strong></td>
<td><strong>38,338</strong></td>
<td><strong>11,336</strong></td>
</tr>
</tbody>
</table>

### Weighted Points

<table>
<thead>
<tr>
<th>Institution</th>
<th>Completion</th>
<th>Research &amp; Development</th>
<th>Productivity</th>
<th>Credit Accumulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Maine</td>
<td>3,944</td>
<td>1,583</td>
<td>2,342</td>
<td>289</td>
</tr>
<tr>
<td>UMaine - Augusta</td>
<td>1,451</td>
<td>-</td>
<td>1,310</td>
<td>211</td>
</tr>
<tr>
<td>UMaine - Farmington</td>
<td>952</td>
<td>-</td>
<td>842</td>
<td>103</td>
</tr>
<tr>
<td>UMaine - Fort Kent</td>
<td>457</td>
<td>-</td>
<td>309</td>
<td>31</td>
</tr>
<tr>
<td>UMaine - Machias</td>
<td>187</td>
<td>-</td>
<td>134</td>
<td>26</td>
</tr>
<tr>
<td>UMaine - Presque Isle</td>
<td>584</td>
<td>-</td>
<td>476</td>
<td>43</td>
</tr>
<tr>
<td>University of Southern Maine</td>
<td>4,217</td>
<td>106</td>
<td>3,010</td>
<td>291</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>11,793</strong></td>
<td><strong>1,689</strong></td>
<td><strong>8,422</strong></td>
<td><strong>994</strong></td>
</tr>
</tbody>
</table>

Then, by metric, the point percentages are calculated for each institution. In this example, UMaine’s 3,944 weighted completion points represent 33% of the total 11,793 weighted completion points.

<table>
<thead>
<tr>
<th>Institution</th>
<th>Weighted Points as a % of Total Weighted Points</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Completion</td>
</tr>
<tr>
<td>University of Maine</td>
<td>33%</td>
</tr>
<tr>
<td>UMaine - Augusta</td>
<td>12%</td>
</tr>
<tr>
<td>UMaine - Farmington</td>
<td>8%</td>
</tr>
<tr>
<td>UMaine - Fort Kent</td>
<td>4%</td>
</tr>
<tr>
<td>UMaine - Machias</td>
<td>2%</td>
</tr>
<tr>
<td>UMaine - Presque Isle</td>
<td>5%</td>
</tr>
<tr>
<td>University of Southern Maine</td>
<td>36%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>
Finally the percentage of total weighted points is applied to the Outcomes Funding Pool for the metric to determine the amount each institution will receive from the Pool. In this example, UMaine will receive 33% of the $4,223,385 in the Completion Funding Pool or $1,412,584 for this metric.

<table>
<thead>
<tr>
<th>Institution</th>
<th>Completion</th>
<th>Research &amp; Development</th>
<th>Productivity</th>
<th>Credit Accumulation</th>
<th>Total $ Received</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Maine</td>
<td>$1,412,584</td>
<td>$1,196,504</td>
<td>$451,737</td>
<td>$188,691</td>
<td>$3,249,516</td>
</tr>
<tr>
<td>UMaine - Augusta</td>
<td>$519,544</td>
<td>0</td>
<td>$252,646</td>
<td>$138,104</td>
<td>$910,294</td>
</tr>
<tr>
<td>UMaine - Farmington</td>
<td>$340,935</td>
<td>0</td>
<td>$162,467</td>
<td>$67,312</td>
<td>$570,714</td>
</tr>
<tr>
<td>UMaine - Fort Kent</td>
<td>$163,711</td>
<td>0</td>
<td>$59,544</td>
<td>$20,319</td>
<td>$243,574</td>
</tr>
<tr>
<td>UMaine - Machias</td>
<td>$66,997</td>
<td>0</td>
<td>$25,748</td>
<td>$16,710</td>
<td>$109,455</td>
</tr>
<tr>
<td>UMaine - Presque Isle</td>
<td>$209,256</td>
<td>0</td>
<td>$91,801</td>
<td>$28,405</td>
<td>$329,462</td>
</tr>
<tr>
<td>University of Southern Maine</td>
<td>$1,510,357</td>
<td>$79,873</td>
<td>$580,437</td>
<td>$190,210</td>
<td>$2,360,877</td>
</tr>
<tr>
<td>TOTAL</td>
<td>$4,223,385</td>
<td>$1,276,377</td>
<td>$1,624,379</td>
<td>$649,752</td>
<td>$7,773,892</td>
</tr>
</tbody>
</table>

VI. Stop Loss Provision

The purpose of the stop loss is to insure that an institution cannot lose more appropriation than the stop loss percentage. The OBFM Review Team recommendation is a 2.0% stop loss in the initial implementation year. The stop loss would increase by 0.5% per year to 2.5% in Year 2; 3.0% in Year 3; 3.5% in Year 4; and then the stop loss would be eliminated in Year 5. This means that, for example, in Year 1 the total E&G appropriation for any institution after the outcomes-based distribution cannot be more than 2% below its starting base. Since there is a fixed amount in the Pool, a pro-rated adjustment is performed within the stop loss component of the model to redistribute funds from those institutions that gained appropriation to those institutions with losses exceeding the stop loss percentage.
# APPENDIX A

## CERTIFICATES

<table>
<thead>
<tr>
<th>CAMPUS</th>
<th>DEGREE LEVEL</th>
<th>GP12</th>
<th>CIP CATEGORY</th>
<th>CIP CODE</th>
<th>INDUSTRY RECOGNIZED</th>
<th>CIP DESCRIPTION</th>
<th>ACADEMIC PLAN DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>UM</td>
<td>Grad Certificate</td>
<td>01</td>
<td>Agriculture, Agriculture Operations, And Related Sciences</td>
<td>01.1000</td>
<td>Y</td>
<td>Food Science</td>
<td>Food and Nutrition Cert</td>
</tr>
<tr>
<td>UM</td>
<td>Grad Certificate</td>
<td>13</td>
<td>Education</td>
<td>13.0401</td>
<td>Y</td>
<td>Educational Leadership and Administration, General</td>
<td>Educational Leadership</td>
</tr>
<tr>
<td>UM</td>
<td>Grad Certificate</td>
<td>13</td>
<td>Education</td>
<td>13.0406</td>
<td>Y</td>
<td>Higher Education/Higher Education Administration</td>
<td>Student Dev in Higher Educ</td>
</tr>
<tr>
<td>UM</td>
<td>Grad Certificate</td>
<td>13</td>
<td>Education</td>
<td>13.0601</td>
<td>Y</td>
<td>Educational Evaluation and Research</td>
<td>Education Data Specialist</td>
</tr>
<tr>
<td>UM</td>
<td>Grad Certificate</td>
<td>13</td>
<td>Education</td>
<td>13.1001</td>
<td>Y</td>
<td>Special Education and Teaching, General</td>
<td>Special Education</td>
</tr>
<tr>
<td>UM</td>
<td>Grad Certificate</td>
<td>13</td>
<td>Education</td>
<td>13.1101</td>
<td>Y</td>
<td>Counselor Education/School Counseling and Guidance Services</td>
<td>Counselor Education</td>
</tr>
<tr>
<td>UM</td>
<td>Grad Certificate</td>
<td>13</td>
<td>Education</td>
<td>13.1205</td>
<td>Y</td>
<td>Secondary Education and Teaching</td>
<td>Secondary Education (CAI)</td>
</tr>
<tr>
<td>UM</td>
<td>Grad Certificate</td>
<td>13</td>
<td>Education</td>
<td>13.1309</td>
<td>Y</td>
<td>Technology Teacher Education/Industrial Arts Teacher Education</td>
<td>Classroom Tech Integrationist</td>
</tr>
<tr>
<td>UM</td>
<td>Grad Certificate</td>
<td>13</td>
<td>Education</td>
<td>13.1315</td>
<td>Y</td>
<td>Reading Teacher Education</td>
<td>Literacy Education</td>
</tr>
<tr>
<td>UM</td>
<td>Grad Certificate</td>
<td>13</td>
<td>Education</td>
<td>13.1316</td>
<td>Y</td>
<td>Science Teacher Education/General Science Teacher Education</td>
<td>Science Education</td>
</tr>
<tr>
<td>UM</td>
<td>Grad Certificate</td>
<td>13</td>
<td>Education</td>
<td>13.1318</td>
<td>Y</td>
<td>Social Studies Teacher Education</td>
<td>Social Studies Education</td>
</tr>
<tr>
<td>UM</td>
<td>Grad Certificate</td>
<td>13</td>
<td>Education</td>
<td>13.1399</td>
<td>Y</td>
<td>Teacher Education and Professional Development, Specific Subject Areas, Other</td>
<td>Individualized Program</td>
</tr>
<tr>
<td>UMA</td>
<td>UGrad Certificate</td>
<td>19</td>
<td>Family And Consumer Sciences/Human Sciences</td>
<td>19.0709</td>
<td>Y</td>
<td>Child Care Provider/Assistant</td>
<td>Child &amp; Youth Care Cert</td>
</tr>
<tr>
<td>UMA</td>
<td>UGrad Certificate</td>
<td>22</td>
<td>Legal Professions And Studies</td>
<td>22.0302</td>
<td>Y</td>
<td>Legal Assistant/Paralegal</td>
<td>Paralegal Studies Cert Program</td>
</tr>
<tr>
<td>UMA</td>
<td>UGrad Certificate</td>
<td>25</td>
<td>Library Science</td>
<td>25.0301</td>
<td></td>
<td>Library and Archives Assisting</td>
<td>Information &amp; Library Services</td>
</tr>
<tr>
<td>UMA</td>
<td>UGrad Certificate</td>
<td>25</td>
<td>Library Science</td>
<td>25.0301</td>
<td></td>
<td>Library and Archives Assisting</td>
<td>Library &amp; Information Services</td>
</tr>
<tr>
<td>UMA</td>
<td>UGrad Certificate</td>
<td>41</td>
<td>Science Technologies/Technicians</td>
<td>41.9900</td>
<td></td>
<td>Science Technologies/Technicians, Other</td>
<td>Forensic Science - Investigat.</td>
</tr>
<tr>
<td>UMA</td>
<td>UGrad Certificate</td>
<td>41</td>
<td>Science Technologies/Technicians</td>
<td>41.9900</td>
<td></td>
<td>Science Technologies/Technicians, Other</td>
<td>Forensic Science - Scientific</td>
</tr>
<tr>
<td>UMA</td>
<td>UGrad Certificate</td>
<td>43</td>
<td>Homeland Security, Law Enforcement, Firefighting And Related Protective Services</td>
<td>43.0107</td>
<td>Y</td>
<td>Criminal Justice/Police Science</td>
<td>Community Policing Cert Prog</td>
</tr>
<tr>
<td>UMA</td>
<td>UGrad Certificate</td>
<td>44</td>
<td>Public Administration And Social Service Professions</td>
<td>44.0000</td>
<td></td>
<td>Human Services, General</td>
<td>Human Services Cert Prog</td>
</tr>
<tr>
<td>UMA</td>
<td>UGrad Certificate</td>
<td>44</td>
<td>Public Administration And Social Service Professions</td>
<td>44.0400</td>
<td></td>
<td>Public Administration</td>
<td>Government Management Cert</td>
</tr>
<tr>
<td>UMA</td>
<td>UGrad Certificate</td>
<td>51</td>
<td>Health Professions And Related Programs</td>
<td>51.0601</td>
<td>Y</td>
<td>Dental Assisting/Assistant</td>
<td>Dental Assisting Certificate</td>
</tr>
<tr>
<td>UMA</td>
<td>UGrad Certificate</td>
<td>51</td>
<td>Health Professions And Related Programs</td>
<td>51.1501</td>
<td>Y</td>
<td>Substance Abuse/Addiction Counseling</td>
<td>Substance Abuse Rehab Tech</td>
</tr>
<tr>
<td>UMA</td>
<td>UGrad Certificate</td>
<td>51</td>
<td>Health Professions And Related Programs</td>
<td>51.1502</td>
<td>Y</td>
<td>Psychiatric/Mental Health Services Technician</td>
<td>Mental Health Rehab Tech/Comm</td>
</tr>
<tr>
<td>UMA</td>
<td>UGrad Certificate</td>
<td>52</td>
<td>Business, Management, Marketing, And Related Support Services</td>
<td>52.0302</td>
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<td>Accounting Technology/Technician and Bookkeeping</td>
<td>Accounting - Level I</td>
</tr>
<tr>
<td>UMA</td>
<td>UGrad Certificate</td>
<td>52</td>
<td>Business, Management, Marketing, And Related Support Services</td>
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<td>Accounting - Level II</td>
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<tr>
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<td>Human Resource Management Cert</td>
</tr>
<tr>
<td>UMA</td>
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<td>Business, Management, Marketing, And Related Support Services</td>
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<td></td>
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</tr>
<tr>
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<td>Public Administration And Social Service Professions</td>
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<td>Mental Health MHRT Certificate</td>
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<td>GIS Applications</td>
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<td>UMM</td>
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<td>Business, Management, Marketing, And Related Support Services</td>
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<td>Human Resource Management Cert</td>
</tr>
<tr>
<td>UMPI</td>
<td>UGrad Certificate</td>
<td></td>
<td>Geographic Information Systems</td>
<td></td>
<td></td>
<td>Geographic Information Systems</td>
<td></td>
</tr>
<tr>
<td>CAMPUS LEVEL</td>
<td>DEGREE LEVEL</td>
<td>CIP12 CODE</td>
<td>CIP CATEGORY</td>
<td>CIP CODE</td>
<td>INDUSTRY RECOGNIZED</td>
<td>CP DESCRIPTION</td>
<td>ACADEMIC PLAN DESCRIPTION</td>
</tr>
<tr>
<td>--------------</td>
<td>--------------</td>
<td>------------</td>
<td>--------------</td>
<td>----------</td>
<td>---------------------</td>
<td>----------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>USM</td>
<td>UGrad</td>
<td></td>
<td>Creative Leadership/Global Str</td>
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<td></td>
<td>Creative Leadership/Global Str</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Applied Geographic Information</td>
<td></td>
<td></td>
<td>Applied Geographic Information</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Creative Leadership/Global Str</td>
<td></td>
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APPENDIX B

PRIORITY FIELDS – STEM & ALLIED HEALTH

*Highlighted CIPs represent those included for the preliminary Outcomes-Based Funding model that were not included in the original 1/26/12 STEM in the UMS report.*  Miriam White.

III. UNIVERSITY OF MAINE SYSTEM STEM PROGRAMS INCLUDED IN STEM DATA

*Categories from the National Center for Education Statistics CIPs, 2010*

S.T.E.M. Degrees include 12 academic programs within the Science, Technology, Engineering and Mathematics fields. The lists of majors within each program are listed below (with the corresponding campuses at which they are offered), and sorted by CIP Classification (only majors for which degrees were conferred in 2011 are listed):

**Agriculture – Agriculture Operations and Related Sciences:**

*CIP Major*

- 01.0000 Agriculture, General (UM)
- 01.0103 Agricultural Economics (UM)
- 01.0303 Aquaculture (UM)
- 01.0601 Applied Horticulture/Horticulture Operations, General (UM)
- 01.0901 Animal Sciences, General (UM)
- 01.1001 Food Science (UM)
- 01.1101 Plant Sciences, General (UM)
- 01.1103 Horticultural Science (UM)

**Architecture and Related Services:**

*CIP Major*

- 04.0201 Architecture – BArch, BA/BS, MArch, MA/MS, PhD (UMA)
- 04.0901 Architectural Technology/Technician (UMA)

**Biological and Biomedical Sciences:**

*CIP Major*

- 26.0101 Biology/Biological Sciences, General (UM, UMA, UMF, UMFK, UMM, UMPI, USM)
- 26.0202 Biochemistry (UM)
- 26.0204 Molecular Biology (UM)
- 26.0210 Biochemistry/Biophysics & Molecular Biology (UM)
- 26.0301 Botany/Plant Biology (UM)
- 26.0502 Microbiology, General (UM)
- 26.0507 Immunology (USM)
- 26.0701 Zoology/Animal Biology (UM)
- 26.0709 Wildlife Biology (UM)
- 26.0908 Exercise Physiology (USM)
- 26.1302 Marine Biology and Biological Oceanography (UMM)

**Communications Technologies/Technicians and Support Services:**

*CIP Major*

- 10.9999 Communications Technologies/Technicians and Support Services, Other (UM)
### Computer and Information Sciences and Support Services:

#### CIP Major
- 11.0101 Computer and Information Sciences, General (UMA)
- 11.0103 Information Technology (UM)
- 11.0202 Computer Programming, Specific Applications (UMFK)
- 11.0701 Computer Science (UM, UMF, UMFK, USM)
- 11.0899 Computer Software and Media Applications, Other (UMFK)

### Engineering:

#### CIP Major
- 14.0301 Agricultural Engineering (UM)
- 14.0701 Chemical Engineering (UM)
- 14.0801 Civil Engineering, General (UM)
- 14.0901 Computer Engineering, General (UM)
- 14.1001 Electrical and Electronics Engineering (UM, USM)
- 14.1201 Engineering Physics/Applied Physics (UM)
- 14.1801 Materials Engineering (UM)
- 14.1901 Mechanical Engineering (UM, USM)
- 14.3801 Surveying Engineering (UM)

### Engineering Technologies and Engineering-related Fields:

#### CIP Major
- 15.0201 Civil Engineering Technology/Technician (UM)
- 15.0303 Electrical, Electronic and Communications Engineering Technology/Technician (UM)
- 15.0612 Industrial Technology/Technician (USM)
- 15.0805 Mechanical Engineering/Mechanical Technology/Technician (UM)
- 15.1102 Surveying Technology/Surveying (UM)

### Health Professions and Related Programs:

#### CIP Major
- 51.0201 Communication Sciences and Disorders, General (UM)
- 51.0601 Dental Assisting/Assistant (UMA)
- 51.0602 Dental Hygiene/Hygienist (UMA)
- 51.0701 Health/Health Care Administration/Management (USM)
- 51.0802 Clinical/Medical Laboratory Assistant (UMA)
- 51.0808 Veterinary/Animal Health Technology/Technician and Veterinary Assistant (UMA)
- 51.0913 Athletic Training/Trainer (UMPI, USM)
- 51.0999 Allied Health Diagnostic, Intervention, and Treatment Professions, Other (USM)
- 51.1004 Clinical/Medical Laboratory Technician (UMPI)
- 51.1005 Clinical Laboratory Science/Medical Technology/Technologist (UM)
- 51.1099 Clinical/Medical Laboratory Science & Allied Professional, Other (UM)
- 51.1502 Psychiatric, Mental Health Technician (UMA)
- 51.1504 Community Health Counseling (UMF)
- 51.1599 Mental and Social Health Services and Allied Professions, Other (UMA)
- 51.1601 Nursing – Registered Nurse Training – RN, ASN, BSN, MSN (UMA)
- 51.2202 Environmental Health (USM)
- 51.2306 Occupational Therapy/Therapist (USM)
- 51.2309 Therapeutic Recreation/Recreational Therapy (USM)
51.2314 Rehabilitation Science (UMF)
51.2399 Rehabilitation & Therapeutic Professions, Other (UMF)
51.3801 Registered Nursing/Registered Nurse (UM, UMA, USM)
51.3803 Adult Health Nurse/Nursing (USM)
51.3805 Family Practice Nurse/Nursing (USM)
51.3808 Nursing Science (UMFK)
51.3810 Psychiatric/Mental Health Nurse/Nursing (USM)
51.3820 Clinical Nurse Leader (USM)

Mathematics and Statistics:

**CIP Major**
27.0101 Mathematics, General (UMF, UMPI, USM)
27.0501 Statistics, General (USM)
27.0503 Mathematics and Statistics (UM)

Natural Resources and Conservation:

**CIP Major**
03.0103 Environmental Studies (UMF, UMFK, UMM, UMPI, USM)
03.0104 Environmental Science (UM, UMF, USM)
03.0201 Natural Resources Management and Policy (UM)
03.0206 Land Use Planning and Management/Development (UMF)
03.0501 Forestry, General (UM)
03.0502 Forest Sciences and Biology (UM)
03.0509 Wood Science and Wood Products/Pulp and Paper Technology (UM)
03.0511 Forest Technology/Technician (UMFK)
03.0601 Wildlife, Fish and Wildlands Science and Management (UM)

Physical Sciences:

**CIP Major**
40.0101 Physical Sciences (USM)
40.0501 Chemistry, General (UM, USM)
40.0600 Geological & Earth Sciences/GeoScience, Other (UMF)
40.0601 Geology/Earth Science, General (UM, UMF, USM)
40.0607 Oceanography, Chemical and Physical (UM)
40.0699 Geological and Earth Sciences/Geosciences, Other (UMF)
40.0801 Physics, General (UM, USM)

Science Technologies/Technicians:

**CIP Major**
41.9900 Science Technologies/Technicians, Other (UMA)
41.9999 Science Technologies/Technicians, Other (UMA)

Multi-/Interdisciplinary Studies:

**CIP Major**
30.3201 Marine Sciences (UM)
APPENDIX C

The following documents are letters from several groups or individuals that provide feedback on the outcomes-based funding model.
December 4, 2012

TO: Rebecca Wyke, Chair
UMS Performance Based Funding Review Team

FROM: Brianna Hughes, University of Maine Graduate Student Representative to the Board of Trustees, for the Graduate Student Government Executive Committee

CC: Performance Based Funding Review Team, Performance Based Funding Project Steering Committee, Board of Trustees Chair Michelle Hood, Chancellor James Page, President Paul Ferguson, Provost Susan Hunter, Dean Daniel Sandweiss, University of Maine Graduate Student Government Executive Committee

RE: Performance Based Funding

Dear Vice Chancellor Wyke,

At the November 4, 2012 Board of Trustees Meeting, Mr. Dennis Jones gave a presentation on Performance Based Funding, and in it he described the importance of promoting mission differentiation and avoiding a one-size-fits-all model. After reviewing the preliminary documents on the Performance Based Funding website, the University of Maine Graduate Student Government is concerned that the University of Maine’s ability to achieve Mission Excellence will be substantially compromised by the current model.

There are over 2,100 graduate students at the University of Maine, in 75 Master’s programs and 30 Doctoral areas of study. There are also over a dozen Graduate Certificate Programs in highly specialized professional areas, and that number is expected to grow as the Blue Sky Plan is implemented. Graduate students in all programs deliver economic benefit to the State of Maine, whether they are working in their communities as teachers and social workers, contributing new products and business designs to local companies, engaging the community with art walks, poetry readings and theater, or developing cutting-edge experiments with global implications. Faculty, graduate students, and undergraduates all play critical roles in the University mission. The tri-partite teaching, research, and outreach mission of the University of Maine is highly integrated and the loss of any one of the branches will compromise the vitality of the other two.
Teaching:

The current Performance Based Funding Model emphasizes quantity, not quality, of the educational experience of students. Undergraduate students rely on graduate students for many aspects of their educational experience. Graduate students serve as teaching assistants and instructors of courses and labs, foster scientific and creative thinking, and act as mentors. Due to the nature of graduate work, however, graduate students cannot compete with undergraduates in terms of enrollment, credit hours accumulated, or length of time to graduate. Nevertheless, graduate students contribute significantly to the quality of undergraduate education and to the social and economic well-being of Maine. Many graduate students also work closely with K-12 students through informal outreach programs as well as Upward Bound and the Graduate Student Government’s K-12 Outreach Initiative. The impacts of these teaching opportunities are long-lasting, inspiring Maine’s youth to go to college and to reach for meaningful, exciting, and unique careers. The benefit to our State and to our System is immeasurable when examined at that scope. The quality of teaching and the entire student experience should be emphasized and encouraged in any Performance Based Funding model; without it how can the System compete with other institutions, let alone have confidence in its graduates?

Research, Scholarship, and Creative Works:

In addition to their own work, graduate students are often responsible for the direct supervision of undergraduates working in labs and studios. The value of hands-on experience in idea generation, experimental design, research, data analysis, statistics, and scientific or creative writing cannot be underscored enough. These experiences help to build a student’s confidence, as well as vital leadership and communication skills. In recognition of these benefits, the Blue Sky Plan intends to increase the number of Graduate Assistantships and Fellowships which will strategically align with and support increases in undergraduate research opportunities on campus. These types of opportunities are critical, and unique, indicators of a high-quality student experience capable of propelling our graduates and our state forward.

The research component in the current proposed Performance Based Funding model only considers and rewards research funded externally. The current model excludes and undervalues many significant research initiatives, such as internally funded undergraduate and graduate research projects, as well as non-STEM fields. Multi-year grants would also negatively affect performance in years following the award, despite productivity generated from the granted dollars. Measures of research productivity beyond dollar amounts should be considered. For example, undergraduates, graduate students, and faculty routinely present their research, scholarship, and creative works through publications, conferences, and exhibits. These types of presentations foster productivity through collaborations, recognition, and increased likelihood of future grant success.
The strong emphasis on Maine-funded research is understood, however, we are concerned by the de-prioritization of research with national and global implications. We agree that local funding should be pursued, but not at the expense of larger scale funding opportunities. We feel it is contradictory to our mission and to the globalization priorities of the Board of Trustees to narrow the research category in the ways presented. Rewarding the expansion of Maine’s reputation beyond its immediate borders would be better aligned with the goals of the Performance Based Funding Review Team and we encourage a model that is inclusive of the diversity of research, scholarship, and creative works that take place at the University of Maine.

**Outreach:**

Outreach and service are embedded in the daily lives of all students and faculty at the University of Maine. Naturally, there are aspects of outreach and service in teaching and research as previously described, but the proposed model does not account for the most significant and stand-alone outreach component of our mission. The University of Maine Cooperative Extension serves each of Maine’s 16 counties, delivering reliable information to Maine’s citizens in almost every possible aspect of their lives. Cooperative Extension works to bring the tremendous resources of the University of Maine to the doorsteps of Maine’s families, farmers, businesses, and communities. Cooperative Extension specialists also play a fundamental role in graduate education by serving on thesis or dissertation committees, offering a wealth of knowledge, and providing valuable connections to expand commercialization opportunities to graduate students.

**Conclusion:**

Based on the examples given on the Performance Based Funding website, the University of Maine stands to lose a substantial amount of funding if these metrics are implemented. Those losses will quickly and irreversibly collapse the mission of the University of Maine. The competitiveness of the University of Maine will be substantially diminished by the Productivity Metric in the current model, which considers the number of degrees granted per $100,000 of appropriation and net tuition & fees. The cost per degree at the University of Maine is inarguably higher, but the far-reaching return on investment of those dollars should not be discounted as the Performance Based Funding model appears to do.

It would be a disservice to the State of Maine to penalize the University of Maine by undervaluing the vital contributions of the Graduate School and non-degree granting programs such as Cooperative Extension. As such, the University of Maine Graduate Student Government fully supports the recommendations of the University of Maine Faculty Senate for revision of the proposed Performance Based Funding model. Mission differentiation has never been so important, and we believe that a model that fairly represents our tri-partite mission will enhance, not diminish, the ability of the University of Maine System to fulfill its mission. Thank you very much for considering our concerns.
I am strongly supportive of a performance-based funding model. Below I have listed some questions and/or areas of concern.

1. A major flaw is that the metrics in the model are not explicitly tied to the goals. Doing so would make the model more defensible because then you could delineate if objections are due to a disagreement with the goals themselves, or if there is agreement with the goals, and the objection is with a particular way of measuring the goals. These are two very different objections. As it stands a debate could involve opposite sides talking past each other about different things. I had to look hard to even find the goals (which are on slide 20 of the NCHEMS overview). Note that NCHEMS stresses the importance of getting agreement on the goals and warns against creating a model that is an end in itself (and I would add to that one that it perceived that way). I personally find the order of the goals to be rather odd (for example it seems as if the first goal is a way of meeting the second and third goals) and think the absence of a goal about educational attainment of traditional aged students is problematic. It also seems, working backwards from the metrics, that cooperation with the Maine community colleges is a goal, but that is not on the list.

   Increase the educational attainment of the working-age (25-64) population of the state
   Meet the workforce needs of Maine employers
   Contribute to the economic development of the state
   Improve the productivity of the University of Maine System institutions

2. I think the best way to sell this to the campuses is to emphasize the leveraging potential of implementing this model with the legislators. This is the only way we are going to grow the overall pot. Advocating for the system with the legislators has been an area where the system has not been very effective. A new funding model provides an opportunity to change that.

3. Because this is a zero-sum model a 5% contribution with a 2% stop loss is mathematically equivalent to a 3% contribution. If this packaging is what is required to sell a performance-based funding model to the campuses, then I don’t have a problem with that.

   If I understand the document correctly the effective contribution for the first 6 years (in percentages) is:

   \[5\cdot c(1:6)-c(2,1.5,1,5,0,0)=3.0 \quad 8.5 \quad 14.0 \quad 19.5 \quad 25.0 \quad 30.0\]

4. Get rid of SIF. It is a theoretically good idea, but with a poor execution. It will be almost impossible to get campus buy-in for a second campus contribution that reduces their allocated portion of the state appropriations. Note that if SIF is eliminated, the per-campus contribution in the first year will be equivalent to the SIF contribution made in some previous years.

5. One possibility for the future is to tie future tuition increases to performance, i.e. campuses with higher completion rates allowed a greater tuition increase.
6. The degrees awarded point system does not make sense relative to the resources required. An Associate’s degree is 30 credits, a Bachelor’s degree is a 120 or 128, a Master’s degree is 30 credits. The weights should be proportional to the number of credits required, i.e. 0.25, 0.5, and 0.25. Some premium for a graduate degree is defensible, but not a .75 premium.

7. Also note that as constructed, the degrees awarded point system incents the creation of possibly meaningless Associates degree that students could be awarded on the way to earning a Bachelor’s degree to maximize the number of points that can be squeezed out of a single student. A possible fix for this would be to award different points for a Bachelor’s degree earned by a student who has already earned an Associate’s.

8. I have not been able to locate any information, standard or otherwise, about “industry-recognized” certificates. This might be a list that NCHEMS (a private organization) has made which I find to be somewhat concerning – but list it is not available on their website, so I don’t know where it is coming from or what is on it. Does the list match with the workforce needs of Maine? Furthermore, how can campuses be incented to create certificate programs that may meet the needs of the state if they don’t know what the needs are? Also, this model does not make a distinction between undergrad and grad certificates although IPEDS does distinguish (definitions at end of document) – I’m not sure if that is intentional or not. As constructed, the age premium somewhat bizarrely incents longer completion times for those who enter as traditional age students. For example, a 20 year-old who takes 4 years to graduate does not generate an age premium for the awarding campus, but the 20 year-old who takes 5 years to graduates does. But I would need to give this some more thought before suggesting an alternative that would effectively incent educating the non-traditional student. Note that there may be benefit to additional incentives for even older people given the goal. I’m curious about the differences in rates of educational attainment by age in Maine.

I also wonder if the age incentives should only be for bachelor’s degrees as you would expect graduate degree students to be older when they get their degree (especially Ph.D. candidates). Alternatively, have the age incentives for graduate degrees be greater than for bachelor’s degrees.

9. I do not know why transfers are incentivized. They are by definition incentivized because they graduate sooner and thus require less total resources to earn the same completion bonus points.

It may make sense, from the stand point of the tax-payer, to incentivize admission of community college students and encourage them to seek a four-year degree, but this model incents all transfers, including those within the system. I don’t think that recruiting students from other system campuses is something that should be incented. Also, you will find that the coding of transfer students is very messy – for example, students switching majors within the same campus have been coded as new admits with an admit type of TRF (ask Rosa for confirmation and details). This model would encourage that practice.

10. I think awarding productivity is the most important function of the model, but I have questions about the details of the productivity metrics. “Throughput” is the number of degrees per total FTE
including **non-degree** students, but there is no expectation that a non-degree student will earn a degree, thus schools with a large number of non-degree students are penalized. It also seems like grad and undergrad should be computed separately, but I need to give that some more thought.

11. The weighting schema on the two productivity measures is somewhat odd because you are weighting something inside of something else that is also weighted. It might make more sense to just put them in the model separately, but I haven’t looked at the math in detail. I’m guessing the consultant suggested this and I am curious about the rationale.

12. The credit-accumulation metric is problematic for the same reasons the degrees-awarded metric is. The 0.25 points for 30-59 and 0.5 points for 60-89, might make sense in year 1, but after that it should change and just be 0.25 and 0.25., e.g. points for every student who has accumulated 30 additional credits since year 1. Details of an approach like would have to worked out.

13. I am not in favor of phasing out the credit-accumulation metric (though I do think it needs to be different than presented).

14. Secondary Mathematics and Science majors are not being counted as STEM majors at all when they are the most important STEM majors of all to the state economy and should probably get double-points.

15. Document says “Premium points are awarded for each STEM **degree,**” but I think maybe the intention is for each STEM **major**. For example, a student whose first major is English and who adds Math as a second major, does not get a second degree, he or she gets one BA with two majors.

16. Second majors in a STEM field are not being counted.

17. I understand that the model is supposed to promote mission differentiation, but it seems unfair and incongruous with the goals to only reward UM and USM for Maine Partner awards when there are other campuses that have received them (UMM for example).

Reference: IPEDS certificate definitions

<table>
<thead>
<tr>
<th>Certificate</th>
<th>A formal award certifying the satisfactory completion of a postsecondary education program.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-master's certificate</td>
<td>An award that requires completion of an organized program of study equivalent to 24 semester credit hours beyond the master's degree, but does not meet the requirements of academic degrees at the doctor's level.</td>
</tr>
<tr>
<td>Postbaccalaureate certificate</td>
<td>An award that requires completion of an organized program of study equivalent to 18 semester credit hours beyond the bachelor's. It is designed for persons who have completed a baccalaureate degree, but does not meet the requirements of a master’ degree.</td>
</tr>
</tbody>
</table>
December 4, 2012

TO: Rebecca Wyke, Chair
UMS Performance Based Funding Review Team

FROM: Colin Buttarazzi, Undergraduate Representative to the Board of Trustees for the University of Maine

CC: Performance Based Funding Review Team, Performance Based Funding Project Steering Committee, Board of Trustees Chair Michelle Hood, Chancellor James Page, President Paul Ferguson, Provost Susan Hunter, Vice President Robert Dana, University of Maine Undergraduate Student Government Executive Committee

RE: Performance Based Funding

Dear Vice Chancellor Wyke,

The Undergraduate Student Government at the University of Maine would like to express its concern in regard to the proposed Performance Based Funding model. The concern stems from reviewing the metrics and other documents on the Performance Based Funding model. It is our feeling that the information given indicates a one-size-fits-all approach, which was seemingly discouraged by Dennis Jones who gave the Performance Based Funding presentation at the November Board of Trustees meeting. He indicated that since each of the system schools are so different, we should embrace that by promoting mission distinction. However the current model puts much more importance on sheer output of students rather than the educational experience of the students.

The University of Maine offers students, undergraduates especially, a rich and full experience. While here, students can take part in some of our over 200 student organizations, athletics, the Honors College, and undergraduate research. These areas are important to the University of Maine and there is no part of the Performance Based Funding model that adequately addresses the educational experience for students. It costs more per student ($100,000/FTE category of the PBF) at UM because of the diversity of the student experience and our tri-partite mission: teaching, research, and outreach. The areas that we focus on such can be costly but they offer a traditional college experience that many students want. Every day at the University of Maine, students are engaged in community outreach and service through student organizations and Greek life. This area is important in creating a bond between the campus and the community while offering students very unique opportunities. Again, the documents on the Performance
Based Funding website do not indicate that any of these areas are going to be addressed in the metrics, and by not addressing them UM will be unable to compete with the other campuses for Performance Based Funding based on the Productivity Metrics.

Mission distinction is key to a successful Performance Based Funding model and it is unfair to measure such different universities against each other using the same metrics. We believe that a form of Performance Based Funding has the potential to be very beneficial to the System, however in its current form it will not foster System unity or individual growth. In conclusion, the Undergraduate Student Government supports the suggestions made by the University of Maine Faculty Senate for revision of the current Performance Based Funding model. We appreciate you listening to our concerns and hope they can offer you an idea of where the students at the University of Maine stand on these issues.
To: Rebecca Wyke, Chair  
UMS Performance-Based Funding Review Team

From: Harlan J. Onsrud, President, Faculty Senate (with unanimous support from elected members meeting of the University of Maine Faculty Senate)

cc. Performance-Based Funding Review Team Members, Board of Trustees Chair Michelle Hood, Chancellor James Page, President Paul Ferguson, Provost Susan Hunter, Faculty Senate Members, UMS University Presidents

Subject: Improving the UMS Performance-Based Funding Approach

This letter is in response to materials posted at http://thinkmissionexcellence.maine.edu/performance-based-funding/. The University of Maine Faculty Senate Executive Committee has reviewed the materials on the website and we also participated in the on-campus visit.

We believe the Design Principles as set forth on the following slide are reasonable assuming that a Performance Based Funding approach is deemed a worthy pursuit across the University of Maine System.¹

### Design Principles

1. Select goals in line with Maine’s needs.
2. Construct performance metrics:
   - To promote mission differentiation.
   - To ensure all institutions have an opportunity to benefit.
3. Limit the number of outcomes to be rewarded.
4. Use metrics that are transparent and replicable.

However, we have very serious concerns with the proposed metrics. The metrics as proposed work directly against achieving the primary goals of educating more Maine citizens and have numerous negative unintended consequences.

¹ We note that the Performance Based Funding method has been highly controversial and has failed to achieve desired goals in numerous other states where it has been attempted. See Appendix 1. Thus we have serious reservations concerning the value of performance based funding and this important issue should be discussed in depth before proceeding much further. A more productive and rational approach for metric based funding of complex land-grant missions would be to (a) assess the economic return of investments in each academic institution and (b) assess the effectiveness of this return as measured against peer institutions. See Appendix 2.
We begin with a summary listing of the goals that we believe the Board of Trustees is intending to achieve followed by a recommended set of metrics for better achieving those goals. We then describe why and how the current proposed metrics work against achieving the primary goals.

We also wish to state at the outset that we have yet to see any proposed model and accompanying formulae. As such, the comments below are made pending review of the actual model and we are likely to want to make further comments once we are able to see and test the actual model.

I. Goals Meeting Maine’s Needs

It appears that the primary goals desired by the Board of Trustees are to:

a. increase the number of graduates of UMS academic degree programs generally,
b. increase the number of graduates of UMS academic degree programs whose graduates are in greatest demand by the business sector, and
c. achieve the above two objectives as efficiently as possible on each campus in line with the mission of each campus.

It is these ultimate goals that should be measured and upon which a limited pool of incentive funds should be distributed in proportion to improved performance. All other goals listed in the preliminary materials appear to be sub-goals of these goals, specific methods by which the primary goals might be achieved or are goals appropriate to only some campuses. Equity demands that goals that cannot be measured and used to incentivize improved performance across all campuses should not be used to distribute funds from a common pool. Further, methods in achieving goals should NOT be mandated or measured since each campus should be free to choose its own best methods in achieving improved performance under the above three goals consistent with each campus’ mission.

II. A Better Set of Metrics for Achieving the Goals

Goal 1: Increase the Number of Graduates from UMS Academic Degree Programs

Maine needs more university graduates at all academic levels (See Appendices 3 through 5). Further, by focusing first and foremost on increasing numbers of graduates (as opposed to increasing enrollments), strong pressure is automatically placed on universities to find ways to minimize time to graduation. Minimizing time to graduation substantially reduces the high costs of a university degree associated with extra living expenses, lost wages and extra loans to cover them when unnecessary additional years are spent in school.

In the calculations for the Performance Based Funding Model we recommend the following points for degrees awarded. These points appear to be far more rational from the perspective of meeting work force demands and supporting economic prosperity for the State of Maine.
### Degrees Awarded

<table>
<thead>
<tr>
<th>Degrees Awarded</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate Certificate (industry recognized)</td>
<td>0.1</td>
</tr>
<tr>
<td>Associate’s Degree</td>
<td>0.5 (to avoid double counting, grant only 0.4 for any person that also received a certificate as part of their associate’s degree)</td>
</tr>
<tr>
<td>Bachelor’s Degree</td>
<td>1.0 (to avoid double counting, grant only 0.5 for any person that previously received an associate’s degree)</td>
</tr>
<tr>
<td>Graduate Certificate</td>
<td>1.5 (a grad certificate often requires half the number of courses needed for a Master’s degree)</td>
</tr>
<tr>
<td>Master’s Degree</td>
<td>2.0</td>
</tr>
<tr>
<td>Doctoral Degree</td>
<td>4.0</td>
</tr>
</tbody>
</table>

It is much easier to increase the numbers of graduates in some degree programs than in others. Further, higher level degree programs (as a general rule) contribute far more to innovation and business growth in a state than do lower level degree programs. The weight recommendations reflect this reality in the economy.

By example, associate’s degree programs require half the number of credits or courses that a bachelor’s degree program requires. Undergraduate and industry certificates have little standardization and should be only assessed at a very small proportion of an associate level degree unless it can be shown that certificates to be included in the assessment require at least 50% of the hours of training to acquire an associate’s degree. Then the measure might be increased to 0.2.

Graduate degree programs typically require one-on-one weekly meetings between each and every student and their graduate advisor and require much higher credentials of faculty to offer credible graduate degree programs. Many universities use an average weight of 3.0 for Master’s graduates and 6.0 for PhD graduates due to their much more intensive support needs and their much greater value to the business community and economy. We use smaller multiplier values in the chart due to the higher proportion of professional graduate degrees offered in Maine than in most states and this segment of graduates does not require the same level of intensive one-on-one work with faculty.

The 2010 census shows that a higher per capita income in a state is associated with a higher percentage of the state population with graduate (beyond the bachelor's) degrees. Massachusetts, Maryland and Connecticut have the highest percentage of the population with graduate degrees (around 15%) while also being at the top of the per capita income (about $52,000). West Virginia, Arkansas, and Mississippi are near the bottom in the percentage of graduate degrees (around 6.5%) and are also close to the bottom for per capita income (about $32,000). This indicates that the people with graduate degrees are often the movers or associated with the movers in creating wealth for the state that benefits the entire population of the state.

The figures for the fifty states on per capita income and graduate degree percentage can be used to find that the average graduate degree is associated with about $130,000 per year of additional (over and above all income from bachelor's degree and below) income for the state. This additional income figure continues each and every year for more than 40 years of the graduate degree holder's working life.
However, the cost for the graduate degree occurs only once. At a marginal state tax rate of 8.5% and with the greater state income of the degree holder, the state would earn close to $300,000 (present day value) additional in state taxes per graduate degree holder over the life of the graduate degree holder. Further, past studies performed by the UMS have produced statistics to show a multiplier effect of about 7:1 for every dollar invested in research. Thus investment in graduate degrees is associated with a tremendous return for the population of the state.

**Goal 2: Increase the Number of Graduates from UMS Academic Degree Programs in Greatest Demand by the Business and Industry Sector**

The college level graduates in greatest demand in Maine as reflected by job advertisements for employees in newspaper and online postings primarily are in science, technology, engineering and mathematics (STEM) related occupations including health (see Appendix 3 and 4) assuming that the graduates also have high oral and written communication, critical thinking, English language, teamwork, problem solving, business and project administration skills (see Appendices 3 and 5). That is, the work force demand in Maine is highest for students that graduate in a STEM related field but who also have a strong traditional liberal education enforced with business skills.

In the calculations for the *Performance Based Funding Model* we recommend the following points for degrees awarded in STEM disciplines. These points appear to be far more rational from the perspective of meeting work force demands and supporting economic prosperity for the State of Maine.

<table>
<thead>
<tr>
<th>Degrees Awarded in STEM Disciplines</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate Certificate in STEM Discipline (industry recognized)</td>
<td>0.1</td>
</tr>
<tr>
<td>Associate’s Degree in STEM Discipline</td>
<td>0.5 (only 0.4 for any person that also received a certificate as part of their associate’s degree)</td>
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<td>1.0 (only 0.5 for any person that previously received an associate’s degree)</td>
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<tr>
<td>Master’s Degree in STEM Discipline</td>
<td>2.0</td>
</tr>
<tr>
<td>Doctoral Degree in STEM Discipline</td>
<td>4.0</td>
</tr>
</tbody>
</table>

By weighting in this manner, UMS campuses will be highly incentivized to redirect resources towards attracting and ensuring higher retention of STEM graduates. That is, while increasing numbers of college graduates among the population of Maine is important for advancing the state, increasing the numbers of graduates in STEM fields is even more critically important for innovation and the economic growth of Maine’s current and future industries.

**Goal 3: Achieve Increased Numbers of College Graduates in the Maine Population as Efficiently as Possible in Line with the Mission of Each Campus**

One should start from the presumption that each campus is operating relatively efficiently in accomplishing its current mission. Not all campuses are pursuing identical missions and the distinct missions of each campus should be preserved. Some campuses may be far more expensive per student or per full-time equivalent (FTE) faculty member because the campus might serve many more public and industry service needs than other campuses, provide much more expensive graduate programs that
involve a much greater investment in laboratories and buildings, require more specialized faculty, or may need to provide much more graduate student financial support. A campus might also financially support a much higher percentage of expensive STEM programs than other campuses. The distinct missions of UMS campuses and the proportion of state appropriations distributed in order to support these missions have been worked out over many years and thus any action to add or take away a proportion of State appropriation should be based on achieving or failing to achieve the ultimate goals as set forth under Goals 1 and 2 above.

There is no need to assign a productivity metric since increased productivity is a direct result of the process of competition among the campuses. Note that if only goals 1 and 2 are used as the basis for reward or penalty, all campuses will strive energetically to continually increase the numbers of students graduating from their degree programs with an extra emphasis on attracting and retaining students in their STEM programs. If all campuses are equally successful in increasing the percentage of students coming through their programs (e.g. all increase the percentage of their graduates in these two categories by say 5%) the formulae should be designed such that all will receive the exact same percentage of the pooled state appropriation as they otherwise would have received. However, if a campus falls behind or pulls ahead in competition with the other campuses it will be proportionately penalized or rewarded based on its efficiency compared to the rest of the campuses. This approach keeps all campuses continually looking over their shoulders to ensure that they are always at least as efficient as the other campuses in increasing numbers of graduates. The approach gives each campus the freedom to pursue the innovative approaches best suited to their own context and mission in reaching increased efficiencies and keeping abreast of the competition. In this way all campuses continually increase their efficiencies even in the instance where only minimal redistribution of funds might occur.

**Performance Allocation Percent**

Five percent of the historical E&G budget distributed to the universities will be placed in a pool and then redistributed based on the two outcome weights. This % might increase over the years but we envision that a steady 10% pooled amount from the state appropriation each and every year would provide a sufficiently strong incentive to continually increase the numbers of students recruited and retained through to graduation. More than 10% in a pooled amount has potential to cause great instability in planning from year to year at each university.

Because the goal is to incentivize universities to enhance their performance in furtherance of specified goals, there should be no distribution based on performance until all universities have had a minimum of full year to alter their practices to enhance their performance. A distribution without first supplying an opportunity to respond to the new incentives would be irrational and a cause for severe criticism of the program.

**Outcome Weights**

For equity purposes, outcome weights for the two measured goals should be applied the same for all campuses. We recommend that the weights be as follows:

<table>
<thead>
<tr>
<th>Outcome Weights</th>
<th>% applied to each measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Degrees Awarded (% increase or decrease from the average of the previous five years)</td>
<td>70%</td>
</tr>
<tr>
<td>2. STEM Degrees Awarded (% increase or decrease from the average of the previous five years)</td>
<td>30%</td>
</tr>
</tbody>
</table>
We believe the overall number of Degrees Awarded should have a substantially higher weight than the number of STEM Degrees Awarded since the second is a subpopulation of the first.

If assessments are based on percentage improvements, no campus is in a better position than any other campus to increase their numbers of graduates under either 1 or 2. The incentives stay focused on every campus on increasing numbers of graduates (as opposed to increasing enrollments) with the added benefit of minimizing time to graduation and thereby minimizing college expenses for students.

Note that a campus with only 200 students should have a much easier time in increasing their degrees awarded by 10% than a campus with 10,000 students. However, in a similar manner, falling short by 10% in a particular year from the previous five-year average at a small campus could have a devastating effect on that campus’ distribution from the pool. This should keep campuses on their toes and have them always aggressively recruiting and exploring means for retaining students.

III. Why and How the Current Proposed Metrics Work Against Achieving the Primary Goals

The following comments are in regard to metrics contained in the file titled Documentation-of-PBF-Model.pdf

1. Data
Discussion: The statement is made in this section that "To minimize the unintended consequences of any anomalies in a given year, the model is based on the most recent three years of data." We believe three years of data is too short and a five-year data period would be far more effective in lessening anomalies caused by high and low spikes.

2. Point Calculations
A. Degrees Awarded
Discussion: The existence of a core populace with graduate degrees in a state is extremely important to the economic well being of the state. This need and evidence supporting this reality is discussed under Goal 1 in Section II above.
Recommendation: The weights need to be increased substantially for master’s graduates and doctoral graduates as suggested above.

B. Adults and Transfers
Discussion: These metrics run counter to the true goal of increasing educational attainment for Maine's population. We are very surprised that the Performance-Based Funding Review Team would place greater value on degrees awarded to adults and transfer students over those awarded to traditional aged students and those students who initially chose a UMS campus for their education and stayed with it until graduation. In fact, a degree earned by a traditional younger aged student is in general of greater economic value. They contribute to the economy for a much longer period and also have a much lower medical need per year than a comparable older worker just receiving a degree.

The metrics also create a bias against the State populace that have an undergraduate degree and want to transition to a field that is in greater demand in the marketplace, such as to a STEM field, by pursuing a graduate degree in the new field. Why is the review team interested in only retraining the lowest level trained population of the state and not those that already have a degree and could greatly enhance their livelihood and the state’s economic well-being through transition to a new occupation in greater demand? These metrics suggest that the University of Maine should drop its new 24/7 distance education graduate programs and replace them with undergraduate distance education programs.
primarily for students that do not yet have a degree. This would be very unwise in being responsive to the high-level work force needs that the State of Maine most needs.

Further the current Transfer metric based on 25 years of age for an adult has the unintended consequence of providing an incentive to universities to stretch out the time to graduation for traditional students rather than reducing their time to graduation. Receiving premium points for a student that completes a degree in 7 years rather than 6 years makes very little sense.

Further, what is the logic for 24 credits? It seems we should be recruiting older adults who have at least a year's worth of credits under their belt (i.e. 30 credits) since these older students have a much better chance of finishing a two or four year degree than those that do not have such a track record. If you have less than a year of course work you are essentially starting a new undergraduate degree.

The proposed metrics create biases against Universities whose primary population is traditional aged students and against those who are following upward paths of high-level educational attainment. These biases violate the purported design principle that performance metrics should be developed: To promote mission differentiation and to ensure all institutions have an opportunity to benefit.

Recommendation: Degrees awarded should be the primary goal sought and only a metric that directly measures that goal should be included for assessing the performance of universities. Recruiting older students such as through distance education or through improving course transfer mechanisms is only a means to an end. Universities should be free to pursue any and all means to increase their numbers of graduates and biases should not be held for or against certain populations. The campuses themselves are positioned well to determine which populations they should go after commensurate with their missions and their available resources. They should not be micromanaged and the eyes of each university should be drawn back continually to the primary goals as opposed to focused on methods that may or may not be effective on some campuses in reaching the ultimate goals. If particular methods are ineffective, they should be dropped yet the proposed approach does not allow this.

C. Priority Fields

Discussion: There is significant logic in focusing on STEM and Allied Health fields due to high marketplace demand for graduates in these fields at the current time. However, merely awarding premium points will be ineffective in motivating universities to significantly expand numbers of graduates in these fields.

Recommendation: We suggest making increased numbers of graduates of STEM and Allied Health fields as a major goal of the Performance Based Funding initiative and measuring this number directly as suggested under Goal 2 in section II above.

D. Productivity

Discussion: The proposed metrics of Throughput of Students and Financial Productivity are by far the most disturbing of the measures presented in the proposal by NCHEM. The measures suggested merely measure, by analogy, numbers of widgets and the cost of widgets. In industry a major additional concern would be the quality of those widgets. Lack of differentiation among widgets (i.e. all graduates are the same in terms of equal economic value to society) results in a race to the bottom. That is, if high quality and cheap quality widgets are all to be valued and priced the same, all producers are forced to produce cheap widgets because price differentiation is not an option. That is, use of these measures would drive all campuses to now produce cheaper two year degrees with minimally trained instructors because the financial rewards in teaching those students will be the same per student as teaching a doctoral or STEM student. In fact, the rewards will be even greater for lower level students since universities can move them through to graduation much faster. Thus universities will race to avoid teaching expensive programs that have much higher benefits to society because the formula from a practical perspective values low level academic degrees the same or greater than high level degrees.

Further, the metrics completely ignore the other large number of services that some campuses, such as the University of Maine, provide to the State at large as part of its land grant mission. By example,
Cooperative Extension plays a huge role in supporting the Maine Food System. This industry is worth over $718 million wholesale at the farm and over $3 billion retail. Maine’s largest commodity, potatoes, was worth $168 million wholesale in 2011. Extension recently saved this industry over $26 million in crop losses and pesticide applications in controlling the disease late blight.

The productivity metrics completely contradict the rationale that universities should be mission driven. The metrics imply that all missions should be the same and they should all be at the lowest college academic level possible. The reward structure will drive all universities to the lowest level mission and that would be a travesty for the State. The metric, as stated (degrees per 100k revenue) punishes more expensive, full service campuses. The metric also punishes STEM degrees since they are more expensive.

Recommendation: Drop the productivity measures all together since they are not needed. Incentives for pursuing enhanced efficiencies in increasing numbers of graduates fall out naturally as discussed under Goal 3 in section II above.

E. Credit Accumulation
Discussion: The logic for supplying this transition metric is largely eliminated by using a more straight-forward and rational based transition as discussed under Performance Allocation Percent in Section II above.

Recommendation: Drop this measure since it is a surrogate and indirect measure and is not needed if the alternative approach as suggested above is followed.

F. Research and Development
Discussion: Research productivity may be and is regularly measured at leading universities by various standard means such as numbers of funded research projects and amounts of funded research. However, to measure this productivity at some UMS universities and not at all universities results in a situation of counting apples at some institutions and oranges at others. Comparisons become complex and readily subject to manipulation based on the whims of those developing formulae. Further, the measures as applied are irrational. Why should a large grant to the university from the National Science Foundation or a Defense Agency that might support a project of vast potential economic importance to the state (e.g. wind energy) be valued less than a grant from a local Maine funding source? Past studies performed by the UMS have produced statistics to show how research and development is a driver for the economy and has a multiplier effect of about 7:1 for every dollar invested in research.

Recommendation: Unless all universities are measured on their percentage of increase or decrease in performance based on this measure, we highly recommend that the measure be dropped for all institutions. It works against creation of a level playing field in the competition for funds from a common pool.

3. Dashboard

A. Performance Funding Allocation Percent

Discussion: This means of proportion among the universities seems highly inappropriate. The statement is made that "This means that 5% of each institution’s historical E&G appropriation (excluding debt service) will be placed in a pool and then redistributed based on the 5 Outcome Weights."

The University of Maine has approximately 35% of the students in the UMS system and receives historically about 50% of the State of Maine appropriation. This is due to the fact that the land grant university provides many more service and outreach missions than other universities provide, has a much more extensive offering of undergraduate courses, has much more expensive high level masters and doctorate programs and provides many more expensive STEM programs that are so critical to the well being of the current and future economic advancement of the state. The assumption should be that
the cost differential is approximately appropriate as reflected by the current state E&G funding allocation distribution. This should be the beginning point in any assessment prior to applying a model to provide incentives to campuses to increase performance in furtherance of specific new goals. The suggested means of distribution is irrational if the goal is To promote mission differentiation and to ensure all institutions have an opportunity to benefit.

4. Outcome Weights

Discussion: As discussed above, the proposed outcome weights are irrational in that the same weights should be used for each outcome for each campus. If assessments are based on percentage improvements, no campus is in a better position than any other campus to increase their graduate numbers. Keeping the goals simple and the measures of those goals direct, straight-forward and readily determinable minimizes the opportunity to manipulate formulae to further political agendas rather than the achievement of core goals.

Recommendation: Providing simple, transparent and direct measures of a minimum number of core goals is the most equitable means of supporting a performance-based funding distribution and provides the strongest incentives for each campus in achieving the goals.
APPENDIX 1

References Discussing the Severe Limitations of Performance Based Funding as Applied at the State Level for Universities


Dougherty, Kevin J., Rebecca S. Natow and Blanca E. Vega, Popular but Unstable: Explaining Why State Performance Funding Systems in the United States Often Do Not Persist, Teachers College Record (Columbia University), Volume 114, 030301, March 2012, 41 pages
APPENDIX 2

Rational Methods for Assessing and Measuring the Performance of a Complex Land Grant Institution

Recently, discussions have emerged that have asked the University of Maine System to react more effectively to the needs of the state of Maine. Among the needs articulated are an increased number of graduates in the STEM fields (science, technology, engineering and mathematics) and a need to increase the number of college graduates to increase state revenue and help reduce the demands on state aid for the elderly and poor. Improvement in the revenue for the state is a reflection of the improvement in the quality of life of Maine citizens.

This is not a new challenge. Before the US Civil War there was a need for economic advancement that was met with the creation of Land Grant Colleges in 1862 for each state, including the University of Maine in this state in 1865. These institutions were focused on the agricultural and mechanical arts but, interestingly, also taught Greek and Latin. For what purpose were these schools really intended? These schools were intended to provide a broad education for farmers and mechanics, so that they could not only more effectively produce industrial innovation and more effectively farm, but also they could create a middle class who would lead the farming and industrial communities forward with help from the most advanced agricultural and technical research and outreach. This challenge is unchanged. The University of Maine still promotes economic development of the state and improves people's lives through basic and applied research, professional education and state-wide outreach.

For the University of Maine, the Maine Land Grant College in Orono, the mission has not really changed since 1865. But it has never been easy or cheap. Economic development through research, professional education and state-wide outreach requires space, faculties with specialized skills and knowledge, graduate level education, faculty research, and a commitment to outreach. The return on investment is measured by the associated economic development resulting from the application of the land-grant mission. The cost of the large farms that were given to the land grant schools has been replaced with the cost of supercomputers and extensive laboratory and clinical equipment. Typically, the more advanced or the more technological the degree, the higher the demand for equipment. Further, some of the faculty in technical areas must be more highly paid since there is a high value market for the skills of an engineer, nurse or programmer in society. Cooperative Extension has an office and outreach program in every Maine county to help Maine residents solve problems at home and work, on farms and in communities. These are examples of the land-grant mission where investment will yield possible great returns but the teaching is focused and its return to the state cannot be measured by tuition income.

Recent data from job advertisements in Maine for employees, ostensibly a good measure of people who are hard to find, shows that individuals with university training in the usual occupations - nursing, engineering and computer science- are in short supply (See Appendix 3). However, the same advertisements for open positions in Maine show that in addition to specialized training employers want those same individuals to be able to communicate with customers and solve problems. The latter skills are less about the specifics of a professional degree and more about learning a broad set of tools that are applicable in a range of situations. This idea has been institutionalized by organizations that accredit professional programs like, engineering, nursing and computer science and who demand a specific breadth of education in their degree programs. This is the sort of education that is best served by a comprehensive university, a university which can provide state-of-the-art technical education but which also has a critical mass of broader skills.

The 2010 census showed that a higher per capita income in a state is associated with a higher percentage of the state population with graduate (beyond the bachelor's) degrees. Massachusetts, Maryland and
Connecticut have the highest percentage of the population with graduate degrees (around 15%) while also being at the top of the per capita income (about $52,000). West Virginia, Arkansas, and Mississippi are near the bottom in the percentage of graduate degrees (around 6.5%) and are also close to the bottom for per capita income (about $32,000). This indicates that people with graduate degrees are often the movers or associated with the movers in creating wealth for the state that benefits the entire population of the state.

If we look at the job advertisements, it is clear that employers in the state want graduates of technical and professional programs in the STEM fields. For example, while demand is high the average high school graduate earns $25,900 per year. The average starting wage for a mechanical engineer is nearly $61,000. The average debt load for students in Maine is just under $30,000, meaning that the pay difference in the first year after college is enough to pay off the investment in a mechanical engineering degree.

The figures for the fifty states on per capita income and graduate degree percentage can be used to find that the average graduate degree is associated with about $130,000 per year of additional (over and above all income from bachelor's degree and below) income for the state. This additional income figure continues each and every year for more than 40 years of the graduate degree holder's working life. However, the cost for the graduate degree occurs only once. At a marginal state tax rate of 8.5% and with the greater state income of the degree holder, the state would earn close to $300,000 (present day value) additional in state taxes per graduate degree holder over the life of the graduate degree holder. Thus investment in graduate degrees is associated with a tremendous return for the population of the state.

How does the University of Maine System address the needs of the state? We need to keep tuition affordable for all residents of the state. We need to support those degrees that allow the students to not only fill current jobs but also build for the jobs of the future, and we need to recognize that the current jobs as well as the jobs of the future will need a broad range of skills. However, as long as we graduate students in fields that can return the financial investment in a handful of years and that prepare students for a lifetime of higher earnings, we will need to make sure that the institution that can deliver these results are healthy and affordable for all students.

Metric based funding of the complex land-grant mission should be based on the economic return of the investments. Alternatively, tuition return effectiveness or other measures are best measured by comparison to peer institutions and their respective state economics. Land-grant peer institutions for the University of Maine have often included New Mexico State, University of Rhode Island, University of New Hampshire, Montana State University and the University of Wyoming.
For 7+ Million Internet Job Postings in 2011, 
Education Requirements
Figure 1. Recent and Projected Growth in STEM and Non-STEM Employment


Supply & Demand by Occupation Group

Data from Burning Glass Technologies:

- Healthcare Practitioners and Technical
- Computer and Mathematical
- Architecture and Engineering
- Healthcare Support
- Arts, Design, Entertainment, Sports, and Related
- Management
- Building and Grounds Cleaning and Related
- Personal Care and Service
- Business and Financial Operations
- Construction and Extraction
- Sales and Related
- Transportation and Material Moving
- Food Preparation and Serving-Related
- Installation, Maintenance, and Repair
- Production
- Office and Administrative Support

Shortage

Surplus
“Very Important” Skills for New Entrants with Four-Year College Diploma

From Conference Board Employer Survey

<table>
<thead>
<tr>
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<th>Percentage</th>
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<tr>
<td>Oral Communications *</td>
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<tr>
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<tr>
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<td>85.6%</td>
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<tr>
<td>Leadership *</td>
<td>81.8%</td>
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* Applied Skill

Why Invest in your Future

Percentage

Unemployment

Median Weekly Earnings

Unemployment Rate

Median Weekly Earnings

Some high school, no diploma
Some college, no degree
Associate degree
Bachelor's degree
Master's degree
Professional degree
Doctoral degree

Unemployment Rate

Median Weekly Earnings

$0

$200

$400

$600

$800

$1,000

$1,200

$1,400

$1,600

0

2

4

6

8

10

12

14

16
APPENDIX 4

Top Detailed Occupations: State of Maine (John Dorrer)
There are 12,465 postings available with the current filters applied.
There are 403 unspecified or unclassified postings.
11/18/2011-11/16/2012

Active Selections
Education: Bachelor’s Degree
Education: Graduate or Professional Degree
Date: Nov 18, 2011 – Nov 16, 2012
State: Maine

[Diagram showing detailed occupations and their counts for the state of Maine]
APPENDIX 5

Skill Clusters in Demand: State of Maine (John Dorrer)
There are 12,465 postings available with the current filters applied.
There are 0 unspecified or unclassified postings.
11/18/2011-11/16/2012

Active Selections
Education: Bachelor’s Degree
Education: Graduate or Professional Degree
Date: Nov 18, 2011 – Nov 16, 2012
State: Maine
Appendix D

Outcome Based Funding Analysis with “Survey Monkey”
Outcome Based Funding Survey

- Survey was posted on the missionexcellence website for a period of four weeks in late November and early December, 2012
- There were 74 total respondents in that period
- This analysis shows the details of that feedback
Institutional Affiliation of Respondents

- UM: 15
- UMA: 14
- UMF: 7
- UMFK: 10
- UMPI: 3
- USM: 25

Response n=74
Categorical Affiliation of Respondents

Response n=74

- Alumni: 1
- Faculty: 29
- Staff: 32
- Student: 12
Please indicate your level of support for the goals of outcome-based funding.

- Contribute to the economic development of the state.
  - Average Rating = 3.68

- Improve the productivity of our institutions.
  - Average Rating = 3.67

- Meet the workforce needs of Maine employers.
  - Average Rating = 3.68

- Increase the educational attainment of the working-age (25+) population of the state.
  - Average Rating = 3.70

Response n=73

An "Average Rating" of “3” indicates majority “support”, and a “4” would indicate the majority “strongly supports”
Please indicate your level of support for the goals of outcome-based funding.
Written comments (copied directly without editing):

• Important to accommodate transfers from community college system and to provide a pipeline to post-bacc educational programs

• Create an equitable funding formula for the system.

• Increase overall education level of Maine population.

• Honor education for the individual- not just a trade school

• Civic education

• Innovation, Enrollment Growth (or stability)

• Improve the creative environment and economy

• Incorporate a quality assurance step in each university, not just quantity but actual educational quality

• Improved our efficiency and consistency in providing services to students and faculty

• Collaborate among UMS institutions

• The metrics do not include educational outreach as a method or indicator for economic development.

• Encourage life long learning

• Provide graduate education and research-based education for undergraduates.

• Supporting research and obtaining grant monies

• Improve equity throughout the system at all levels
Please indicate your level of support for the preliminary metrics recommended.

Research and development
Average Rating = 2.94

Credit accumulation (temporary metric - phased out over three years)
Average Rating = 3.00

Productivity: number of degrees awarded per $100k of appropriations and net tuition/fees
Average Rating = 2.97

Productivity: number of degrees awarded per 100 FTE students
Average Rating = 3.00

Degrees awarded in priority fields
Average Rating = 3.29

Premium for degrees awarded to transfer students
Average Rating = 3.08

Premium for degrees awarded to adult students
Average Rating = 3.26

Degrees Awarded
Average Rating = 3.34

Response n=74

An “Average Rating” of “3” indicates majority “support”, and a “4” would indicate the majority “strongly supports”
Please indicate your level of support for the preliminary metrics recommended. Written comments (copied directly without editing):

- I support an R&D metric, but not as presently written
- Number of educational contacts with Maine citizens (may not be degrees awarded--things like CEUs for teachers, certificates for nondegree students, workshop attendance, etc)
- Quality of education
- The University of Maine has far more graduate students and as a result there output should be factored into the equation.
- I do not know enough about these to knowledgeably provide feedback.
- Productivity: number of degrees awarded per $100k per # of FTE Faculty
- Per Student i.e. larger schools should obviously be getting more of the funds since they have more students
- Encourage mission differentiation with metrics for non-degree granting programs and outreach; improve research metric to be more inclusive; increase points for graduate degrees
- Number of research publications completed by faculty and staff.
- Outreach contributions to local/regional/state community. For example, theatre, music, museums or planetaria, public lecture series, etc.
- Share points with all UMS schools on the graduate's 4 yr degree transcript
- Degrees must account for simultaneous enrollment at multiple institutions; grad degree (m.A/M.S. etc) completion would encourage additional adult skill enhancement and workforce development
Please indicate your level of support for the preliminary metrics recommended.
Written comments continued (copied directly without editing):

- All metrics noted are outputs. Enrollment growth is required since it is the future of each institution and directly impacts these outputs. Retention.
- The Arts must not be ignored. music, art, literature
- Student Satisfaction with their education and student success in completing general education learning outcomes
- Collaborative metrics...
- Persistence, 5-year graduation rate, GPA
- Educational outreach related to economic, environmental or social benefit for Maine.
For University of Maine and University of Southern Maine only - please indicate your level of support for the preliminary metrics recommended for research and development.

- **$100k of awards for all other partners**
  - Average Rating = 2.84

- **Number of awards for all other partners**
  - Average Rating = 2.87

- **$100k of awards involving Maine partners**
  - Average Rating = 2.87

- **Number of awards involving Maine partners**
  - Average Rating = 2.95

Response n=39

An “Average Rating” of “3” indicates majority support, and a “2.5” would indicate the average is “neutral”
For University of Maine and University of Southern Maine only - please indicate your level of support for the preliminary metrics recommended for research and development. Written comments (copied directly without editing):

- Support these metrics, but not as presently written
- number of contacts with Maine businesses and other organizations
- We support all four types, but disagree with the metrics - as it is currently written awards with Maine partners are rewarded more than national awards (Maine partners typically produce smaller awards as well). We recommend increasing the other awards to at least the same level as Maine awards, if not increasing it beyond Maine awards.
- I do not agree with the metrics, however.
- I support these metrics but think they need to increased and flipped or else held equal - Maine partners should not receive more points that other partners, particularly since other partners tend to deliver much more significant grant money
- Number of research publications completed by faculty and staff.
- Not sure what these even mean - would all the state contracts count? - they in essence would be Maine partners. How about increasing federal funding that includes research opportunities for students?
- awards involving federal dollars
- UMA has research going on as well, certainly at a lower level than UM & USM but should not be ignored in this funding formula as it goes forward
- Numbers don't matter, it's what's done with them that does matter.
- equal weighting for all awards - both with and without Maine partners
Please select your suggestion for changes to the recommended weighting of each metric for the University you are most closely affiliated with (recommended weightings are listed by university).

Response n=61

An "Average Rating" of “3” indicates majority support “leaving as recommended”, and a “4” would indicate the average want to “increase”
Please select your suggestion for changes to the recommended weighting of each metric for the University you are most closely affiliated with.

Written comments (copied directly without editing):

- This question is impossible to answer without being an available model.
- Impossible to answer without the model
- Certain programs take more resources to complete than others. Simply tallying completion fails to capture this facet.
- This question is impossible to answer without being able to input numbers into the model (the model has been removed from the site).
- This question is impossible to answer without being able to input numbers into the model.
- Without seeing or being able to work with the model it is impossible to determine how these percentages will impact each university
- Without the "dashboard" to test different hypothetical weightings, this question invites pure speculation. Ask again when the dashboard is available.
- Obviously, these may need to be adjusted. Also the choice of priority fields is significant. e.g. stem includes health, but there are indicators that nursing is saturated. Does health include health policy? Public policy changes with new health care system will be significant.
- USM must receive a higher percentage of funding from the State; UMO must receive less.
- this question seems rather subjective and is difficult to answer without being able to input numbers into the model
- why are the larger institutions not held to the same standards as the smaller universities? Are they use to spending abundant amounts of money and getting low results where the smaller institutions have to do more with less.
- The hub of economic activity is in southern Maine. Please stop starving USM - it should be fed, not starved. It has many accredited programs that require research, some with little to no support from the university due to lack of funds.
The current recommended point allocations are shown below. Please indicate whether you feel any of these should be increased, decreased, stay as recommended, or not be allocated any points.

Advanced degrees - 1.25
Average Rating = 3.39

Bachelors degrees - 1.00
Average Rating = 3.36

Associates degrees - 0.50
Average Rating = 3.10

Certificates (industry recognized) - 0.25
Average Rating = 3.12

Response n=69

An “Average Rating” between 2.51 and 3.49 indicates the overall average opinion to be “leave as recommended”
For University of Maine and University of Southern Maine only - please indicate your level of support for the preliminary points recommended for research and service.

- Number of awards for all other partners - 1.0
  - Average Rating = 3.05

- $100k of awards for all other partners - 1.0
  - Average Rating = 3.05

- $100k of awards involving Maine partners - 1.5
  - Average Rating = 3.00

- Number of awards involving Maine partners - 1.5
  - Average Rating = 2.97

Response n=38

An “Average Rating” between 2.51 and 3.49 indicates the overall average opinion to be “leave as recommended”
For University of Maine and University of Southern Maine only - please indicate your level of support for the preliminary points recommended for research and service.

Written comments (copied directly without editing):

- I support all four types, but disagree with the metrics.

- We support all four types, but disagree with the metrics - as it is currently written awards with Maine partners are rewarded more than national awards (Maine partners typically produce smaller awards as well). We recommend increasing the other awards to at least the same level as Maine awards, if not increasing it beyond Maine awards.

- Just use "All Awards"

- As mentioned above, Maine partners and other partners should be equal at least, or other partners should be emphasized - otherwise it penalizes national and global research which would be counterproductive.

- Number of research publications completed by faculty and staff.

- See recommendation above for question 3. Basing this on awards alone ignores huge areas of community service.

- Obviously, these may need to be adjusted, especially if there continue to be significant changes in the external funding environment.

- The number and size of awards isn't a measure of success for the Maine economy.

- Equal weighting for awards with and without Maine partners.

- Ratio of full time faculty to part time faculty and to administration/staff must be accounted for.
The current recommended premium point allocations are shown below. (These premium points would be added to the point allocations in question #6). Please indicate whether you feel any of these should be increased, decreased, stay as recommended, or be eliminated.

- **Doctoral degrees in priority fields - 0.80**
  - Average Rating = 3.10

- **Masters degrees in priority fields - 0.60**
  - Average Rating = 3.35

- **Bachelors degrees in priority fields - 0.40**
  - Average Rating = 3.45

- **Associates degrees in priority fields - 0.20**
  - Average Rating = 3.22

- **Transfers with 24+ credit hours - 0.40**
  - Average Rating = 3.15

- **Adults (aged 25+ when degree is awarded) - 0.40**
  - Average Rating = 3.37

Response n=70

An “Average Rating” between 2.51 and 3.49 indicates the overall average opinion to be “leave as recommended”.
The current recommendation is to allocate 5% of State appropriation to OBF in the first year.

Written comments (copied directly without editing):

- Allow at least a year for each school to consider how to approach these new expectations before substantially cutting into their operating budgets.

- We recommend decreasing it to 3% to better be able to balance our budget from year to year and to be able to gauge the success of a PBF model before committing 5% of our budget - UMaine collects 50% of appropriations, and 5% of that is significantly higher than the 5% the other campuses input into this model. The same is true for Question 11 - increasing the PBF to 30% would almost certainly derail UMaine's ability to stay on budget.

- Leave at 5% until lessons learned are implemented

- To stay consistent with question 11

- It's a start.

- Decreasing the allocation to 3% would make UM's contribution more proportional to its appropriation compared to the other campuses.

- 5% is not enough to incentivize anything, thus the model will accomplish little.

- Why shouldn't funding be based on results? As long as the measure reflects the target population and mission of the school. Usm is never going to be a traditional age, residential school. It has always been at it strongest when the average age is 29ish and nontraditional, urban housing options are made available. Kids don't want to live in east gish, nor do they want to go to school with their grandparents or parents. Likewise, experienced students don't want to sit in a class with a bunch of immature, sheltered, self indulgent brats despite the fact they raised them that way.

- I would suggest that even 15% is too low; we have to have something substantial at stake in order to truly motivate change!

- The current, 'traditional' formula is grossly inequitable.
The current recommendation is to allocate 5% of State appropriation to OBF in the first year.

Written comments continued (copied directly without editing):

- It should be enough to provide incentive to develop policy at the campus level.

- 5% is not enough to motivate most schools especially the small ones with small appropriations and it lets the larger schools off the hook.

- This is the only part of the state appropriation that is rationally distributed. The rest of it is based on an arbitrary historical formula.

- This process is flawed and should not proceed until amended.

- 5 percent is a small sum and barely impactful.

- Would allow better balancing of annual budget and enable PBF model success to be determined before committing a larger proportion of resources to it.

- Should happen more quickly, equity is long overdue.
The initial recommendation was not to allow an aggregation (double-dipping) of premium points for a single student (i.e.: an adult transfer student could not count for points for both the adult and the transfer premiums). Your opinion:

- Yes, the plan should allow an aggregation of premium points
  - n=44

- No, the plan should not allow an aggregation of premium points
  - n=23

Response n=67
The current recommendation is to allocate 5% of State appropriation to OBF in the first year. Please select your preference for the initial allocation. Please articulate your rationale for any changes in the comment field.

- Increase to 15%
- Increase to 10%
- Leave as recommended
- Decrease to 4%
- Decrease to 3%

Initial percentage of appropriations - 5%

The “Average Rating” indicates the mean of opinion to be approximately 6.7% of appropriation.
The current recommendation is to ramp the State allocation an additional 5% per year for five years starting in year two (i.e: 10% in year 2, 15% in year 3, 20% in year 4, 25% in year 5, and 30% in year 6). Please select your preference for the subsequent five years:

- Increase to 15%/year
- Increase to 10%/year
- Leave as recommended
- Decrease to 4%/year
- Decrease to 3%/year

Recommended ramp (per year) for following five years: +5%/year

Average Rating = 6.2

Response n=71

The “Average Rating” indicates the mean of opinion to be an increase of approximately 6.2% per year.
The current recommendation is to ramp the State allocation an additional 5% per year for five years starting in year two (i.e.: 10% in year 2, 15% in year 3, 20% in year 4, 25% in year 5, and 30% in year 6).

Written comments (copied directly without editing):

- Again, allow the universities more time to respond to the changes before reducing support. If the school cannot adapt then it has at least had a chance.

- We recommend decreasing it to 3% to better be able to balance our budget from year to year and to be able to gauge the success of a PBF model before committing 5% of our budget - UMaine collects 50% of appropriations, and 5% of that is significantly higher than the 5% the other campuses input into this model. The same is true for Question 11 - increasing the PBF to 30% would almost certainly derail UMaine's ability to stay on budget.

- 30% in the 6 years is a little steep. I would prefer to see it go up by 4%.

- It gives everyone time to get to work through the process

- Do not ramp up unless you have true performance metrics, not forcible reallocation

- I'm not opposed to increasing the allocation, but I think 30% would make budgets unstable and unpredictable seriously affecting campuses' ability to operate from year to year. I think having a three year period with no increases to evaluate how the PBF is working would be better than committing to such drastic increases in such a short time.

- When the plan is fully implemented, at least 50% of taxpayer related funding should be performance based.

- My preference is not here. It is to start at 10% and end at 40%.

- Start with a higher baseline and this ramp up is appropriate.

- Causes too significant a skew without a review of what is working after year two

- Again, if there is not enough at stake, this initiative will simply be ignored. There is too much at stake for UMS to not succeed with taking meaningful self-initiative to show the public and lawmakers that we are serious about accountability and improvements in meeting mission.
The current recommendation is to ramp the State allocation an additional 5% per year for five years starting in year two (i.e.: 10% in year 2, 15% in year 3, 20% in year 4, 25% in year 5, and 30% in year 6).

Written comments continued (copied directly without editing):

- Before any decision or recommendation is made for that far into the future, we need to see how well the system is working in the real world and the real economy. Therefore we should minimize further increases until that knowledge becomes available. This time next year I might well be saying increase to 15% per year. Who can know till we try?

- Competition is fine. Let us review the results first. Then consider additional percentages.

- Start higher, but keep incremental increases the same

- This question seems premature. We should wait and analyze the impact of the model after the first year and then decide what is best.

- Same as above - need changes in the system and those who bring the services should be supported

- Again, this is the only part of the state appropriation that would be allocated on a rational basis instead of based on an arbitrary historical formula

- Do not increase this percentage until you have a more reflective assessment process.

- 5 per year is too fast. Start at ten. then see how this sudden shift is resulting in a change. Are the metrics working.. 1 year is too small of a time. 5 per 2 years perhaps.

- Our institutions are underfunded; higher education is the only path to success for students in a global economy.

- Our institutions are underfunded; higher education is the only path to success for students in a global economy.

- Allocation should be set initially higher and ramped up significantly less in order for this to be a meaningful initiative from the start

- Same as #10
The current recommendation is to ramp the State allocation an additional 5% per year for five years starting in year two (i.e.: 10% in year 2, 15% in year 3, 20% in year 4, 25% in year 5, and 30% in year 6). Written comments continued (copied directly without editing):

- increasing allocation to 30%/year would make staying within budget difficult
- Must happen quickly, so long as safeguards are in place that account for the ratio of full time faculty to part time and staff/administrators. The trend across the country is to hire low wage adjuncts to balance budgets but quality is the price. Is that what we want? A system full of staff and a mere handful of professional faculty? We can see the results from the community college transfer students we get. Ratios must be controlled in this plan for it to be meaningful reform that includes consideration of educational outcomes.
The review team is considering a number of other comments and feedback. Please indicate your level of support for any or all.

- Any new increases in appropriations funding would automatically flow through the OBF formula.
- We ought to continue the Strategic Investment Fund as a separate pool (not incorporate into OBF).
- Transfers within the UMS ought to count both "in" and "out" (count also for the university that the student is transferring from).
- Plan should include a stop-loss provision that phases out over four years.

Response n=72
Please leave any other comments concerning OBF in the box below.

Written comments (only names redacted):

- I do not think the stop-loss provision should be phased out over 4 years.

- The stop-loss provision should not be phased out.

- I don't know how you think you'll get great feedback from this survey considering the questions are not straight forward and some are very leading.

- As regards to transfers within the UMS ought to count both "in" and "out" it should not count for both because it will count for one of the universities until the student transfers and then next semester it will count to the university that the student is at. There shouldn't be over lapping.

- While I think the stop loss is a good approach, I think it defeats the whole purpose of PERFORMANCE funding to fund the stop loss to the "losers" with funds the "winners" have earned through their performance. I think some statements about the process for reviewing the program each year based on what we've learned would help alleviate anxiety over what surprises are lurking in the model. Thank you for the opportunity to provide input.

- In question 12, I support having a stop-loss but do not agree that it should be phased out. For transfers, it doesn't make sense to give institutions losing the student credit! I disagree with giving credit for transfers anyway since that will encourage campuses to compete for the same students and not work as a SYSTEM. I think the SIF and the PBF should be aggregated - it would lessen the financial impact on campuses to not be losing 8% (first year 3% SIF 5% PBF), but a maximum of 5% of appropriations. I also disagree with flowing any increases in appropriations through the PBF - it should be kept flat and not inflated beyond what a campus can reasonably react to.

- Metrics should include the ratio of degrees earned, outside grants received, and/or other performance to upper level management and administrative costs. (ie, Lower management costs for the same number of students graduating would yield a higher performing institution)
• My comments are too detailed for this tiny box. I will send separately.

• With regard to transfers, I think that certain types of transfers should be recognized -- if one campus is open access and prepares a student for a degree program on another campus that uses stricter admissions guidelines, the preparing campus should get some credit for that work. I am also very supportive of the productivity metrics as they are currently proposed. It is important to recognize and encourage continued productivity and efficiency. Since our campuses do not turn profits, consideration of all revenues in this measurement (including restricted and federal scholarship monies, research funds, gifts, etc) is appropriate, as they all are used to satisfy the bottom line of operations. If a revenue is used to "produce" a degree or to bring in a research grant or to produce an academic paper or product, it should absolutely be counted in the measure. To do otherwise disadvantages those campuses that are working hard to do as much as possible with as little as possible. I would also like some thought to be given to the fact that part time students require as much - if not more - support services as do more traditional, full time students. More service means higher costs - if the productivity metric is going to be changed to satisfy the concerns of other, larger campuses, the unique situation of the smaller campuses should be accounted for at the same time. To paraphrase Murphy's law, any model designed to please every campus will surely disappoint someone. We understand that the model will help us in some regards but not in all regards; we respect that approach, understand and support it. That said, if we are going to back off of this approach to favor one campus in particular, my support for PBF can no longer be counted on.

• This is a completely ludicrous survey. There is no way that any person can respond to the questions rationally without having far more information for assessing the implications of the responses. A document prepared by members of the University of Maine Faculty Senate titled Improving the UMS Performance-Based Funding Approach is posted at http://umaine.edu/facultysenate/files/2012/11/SenateResponsePrfrmnceFndng.pdf Please download and read this document. We look forward to providing further comments and entering into further discussions. Best regards,

• I would like the term Allied Health clarified. Nursing is one of the largest major's at USM and is not usually considered an Allied Health discipline. What other disciplines fall into Allied Health? Could nursing be listed separately as a priority area?
• I find this whole survey premature in that it asks fairly specific questions about weightings and premium points without the ability for the respondent to test possible changes. Also, not enough options appear in the various check boxes: for example re: continuing the Strategic Investment Fund, there is no option for "phase out over time," which would be my suggestion. Most of the other questions ought to include a "no opinion" option as well. I remain deeply concerned about the possibility of a runaway shift of resources to one or two institutions as a funding increase in one year makes it easier to improve performance the following year, leading to further funding increases at the expense of institutions that see their resources ever diminished. The plan needs to have a mechanism to mitigate this possibility. The omission of community value/service is truly problematic in my view. The value of a university to its surrounding community goes far beyond degrees awarded and grants received. These contributions are perhaps harder to quantify as they don't show up in readily swept lines in MaineStreet, but they are real, they are important, and the PBF funding system should include them. Also, MaineStreet is notoriously inaccurate in much of its data reporting in such areas as degrees awarded and extreme caution should be exercised in using data from MaineStreet in making these kinds of decisions.

• What have other institutions using PBF had to say about the impact on multi-campus models? Let the C.C.'s apply this model and then see how it feeds our UMS.

• I am concerned that some priority degrees *are* associates-only degrees, including dental hygiene, veterinary technology, and so on. I don't want institutions to engage in "degree inflation" (trying to make associates programs into bachelors) in order to improve their return from the "priority fields" metric. Making the associates-to-bachelors "raise" less substantial might make this activity less attractive to planners at specific campuses. Overall, this seems fair. I do think that the "feeder" campus which prepares a student to succeed in college should get credit for transferring a student to another UM System campus, so the "Transfers within the UMS ought to count both 'in' and 'out'" option above is a good way to deal with that. Thank you for your work on this.

• If a student transfers out of an institution, they should not get credit for it...it should count against them. Advanced degrees are not offered at all sites, so they shouldn't count so heavily. R&D gets so many grants that state allocations shouldn't be paying for it.
Some programs are the only ones in the state. They should be priority programs regardless of discipline. e.g. graduate public policy/administration is only taught at Muskie/USM--no other public or private university in Maine trains leaders/managers/analysts for non profit or public service professions. Other states have noted in the increase in students who enroll in two or more institutions simultaneously to get needed credits as most effective or least expensive alternatives. This may increase in Maine as transfer becomes more seamless. Measures must factor this in. PBF is not intended to be punitive.

The Arts must not be ignored. music, art, literature. Also, tying funding primarily to degrees awarded may result in impoverished teaching and learning. Why not add praxis type exams for potential graduates along with oral evaluations to ramp up quality in education as well as the quantity model of degrees attained.

Enrollment requirements may need to be raised to raise completion rates. Students aren't always prepared for college work.

Outcomes based funding is a far fairer method than history based. The quantity of enrolled individuals should not be weighted as if all campuses are equal. Campuses without dormitories/housing will not have as many students enrolled as the campuses with housing. Also, the "commuting campuses" automatically have a higher risk student just by the nature of the need to commute to come to classes, this is also the higher risk student due to other constraints upon the students' resources i.e. financial, work, family and transportation.

This appears to be a thoroughly planned and well documented initiative which should result in improved access for Maine residents.

This initiative is definitely a step in the right direction.

I'm surprised to be learning about this initiative at what seems to be the cusp of its implementation. Why weren't University stakeholders engaged in the discussions earlier?

thank you for this important work –
• Thank you for working on this. This is long overdue and although we might want to have a process by which the metrics could be changed based upon changing perceived needs, this should be implemented as soon as possible.

• The SIF needs to come to an end if this process is to be implemented. The PBF is flawed in that it doesn't account for educational outreach and service which is a required part of the mission of the land-grant institution of UMaine. The cost of Cooperative Extension in University E&G rivals the cost of the smaller campuses. If you include all other outreach at UMaine the cost per degree is dramatically increased and doesn’t help the institution in this process at all. If you ask the people of Maine if this outreach matters, there will be an emphatic positive response. Losing funding because of service through this process is counter-productive. Service through educational outreach and other activities really matters and must be included.

• This survey is too vague.

• Please do not abandon this historic opportunity to finally provide USM with a fair formula for funding.

• Some of the priority fields also cost the most to graduate students and require higher numbers of faculty/support staff - these REALITIES need to be factored in and not count against fields such as nursing, engineering, social work, etc.

• The plan and formula is a good starting point. We should have an annual assessment of key indicators and revise if necessary.

• Thank you for keeping the small campus' interest in the forefront.

• SIF should be discontinued and funding disbursed appropriately to campuses.

• Why would the stop-loss provision be phased out?
Please see comments above re requiring that institutions maintain a specified ratio of full-time faculty to part time faculty and to administrative/staff. This is *crucial* to maintain quality. Otherwise, a university is just a shell with low wage adjunct faculty that provides well-paying jobs for administrators but lacks genuine attention to educational outcomes, thus serving the taxpayer with lip service and little else. Second, southern Maine must not continue to be starved in this technological age in a state with such a small population. Do we really need so many physical campuses with the advent of online education (not to mention automobiles)? Yet USM -despite its specialty accreditations and research output and large class sizes in certain cash cow disciplines - is starved for resources. In my opinion based on personal experience and what I have observed, it is taken for granted and truly abused yet it is in the center of the state's economic activity. Its potential influence on economic development is enormous. Yet no one seems willing to put the State of Maine's interest above their own, which serves to perpetuate the inefficiencies in the system. Kudos for trying to address that. I wish you well though personally I am not hopeful.