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August 15, 2019

TO: Members of the Academic & Student Affairs Committee

FR: Ellen N. Doughty, Clerk of the Board *Ellen N. Doughty*

RE: **August 26, 2019 - Academic & Student Affairs Committee Meeting**

The University of Maine

University of Maine
at Augusta

University of Maine
at Farmington

University of Maine
at Fort Kent

University of Maine
at Machias

University of Maine
at Presque Isle

University of
Southern Maine

The Academic & Student Affairs Committee will meet from **9:00 am to 12:00 pm on August 26, 2019**. The meetings will be held at the University of Maine System Executive Offices in the Rudman Conference Room, 253 Estabrooke Hall, 15 Estabrooke Drive in Orono. The following Polycom sites will also be available:

- UMA – Executive Conference Room, Alumni Center
- UMF – Executive Conference Room 103, Merrill Hall
- UMFK – Alumni Conference Room, Nadeau Hall
- UMM – Executive Conference Room 203, Powers Hall
- UMPI – Executive Conference Room, Preble Hall
- USM – Room 423/424, Glickman Library
- Phone – 1-800-605-5167 Passcode 743544#

Refreshments will be provided at the UMA, USM, and UMS locations. The meeting materials will be posted to the Diligent Board Portal as well as the Board of Trustees website (<http://www.maine.edu/about-the-system/board-of-trustees/meeting-agendas/academic-student-affairs-committee/>).

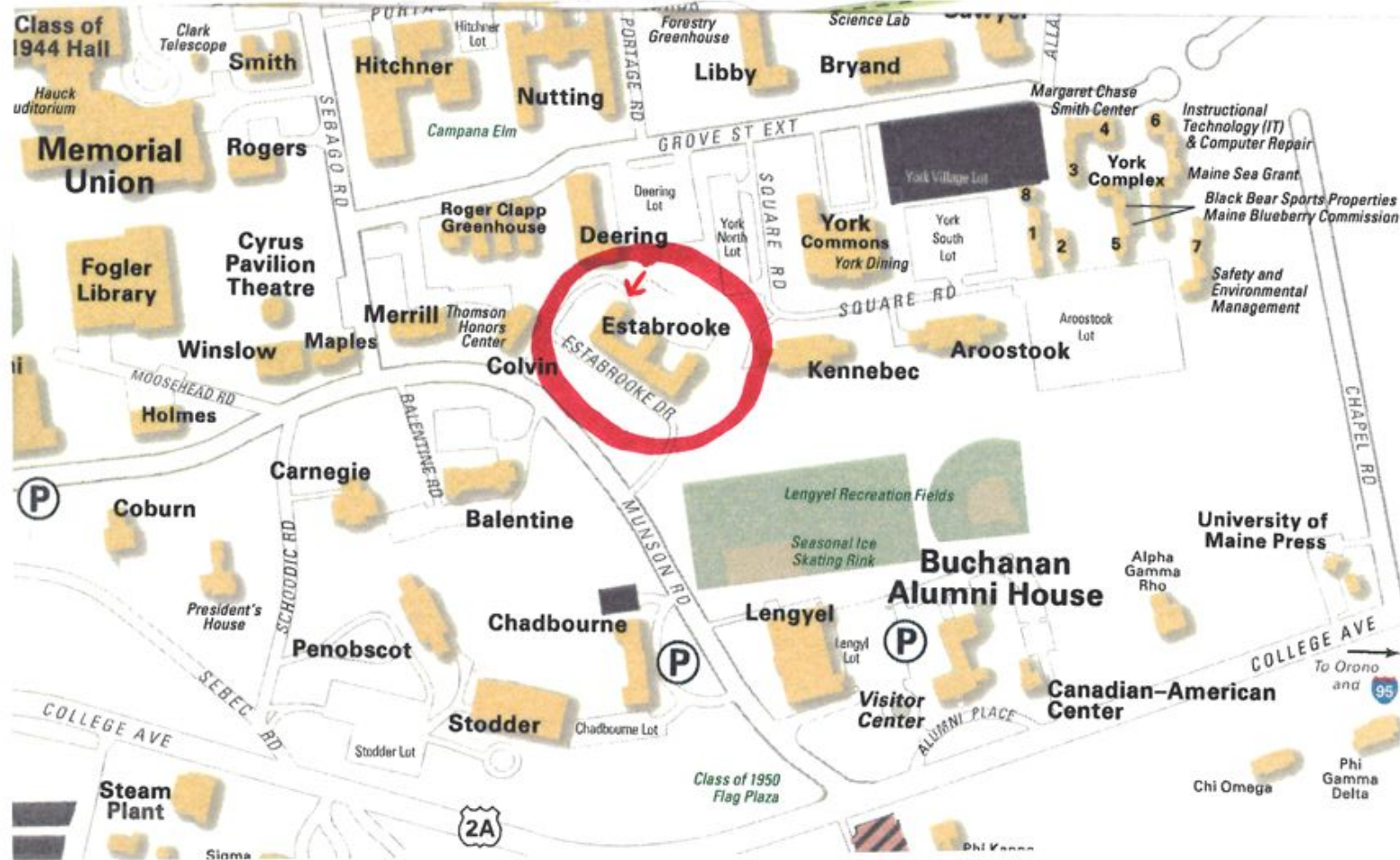
If you have questions about the meeting arrangements or accessing the meeting materials, please call me at 581-5840. If you have any questions or desire additional information about the agenda items, please call Robert Neely at 581-5843 or Rosa Redonnett at 621-3419.

cc: Trustees not on the Academic and Student Affairs Committee
Dannel Malloy, Chancellor
Faculty & Student Representatives
Presidents
Ryan Low
Robert Neely
Kay Kimball
Rosa Redonnett

University of Maine System

15 Estabrooke Drive, Orono

Rudman Conference Room
253 Estabrooke Hall, 2nd Floor
15 Estabrooke Drive, Orono



Directions to the UMS located on the UMaine Campus

From the South on I-95: take exit 191 to Kelly Road and turn right. Continue on Kelly Road for 1 mile until you reach the traffic light, then turn left onto Route 2 and go through downtown Orono. Cross the river. Turn left at the lights onto College Avenue. Buchanan Alumni House will be the first campus-related building on your right. Right after the Buchanan Alumni House, take a right onto Muson Road. Estabrooke Hall is the building on the right after Lengyel.

From the North on I-95: take exit 191 to Kelly Road and turn left. Continue on Kelly Road for 1 mile until you reach the traffic light, then turn left onto Route 2 and go through downtown Orono. Cross the river. Turn left at the lights onto College Avenue. Buchanan Alumni House will be the first campus-related building on your right. Right after the Buchanan Alumni House, take a right onto Muson Road. Estabrooke Hall is the building on the right after Lengyel.

The UMS is located on the 2nd floor of Estabrooke Hall. Enter Estabrooke Hall from the back of the building, the entrance closes to Deering Hall.

Board of Trustees
Academic and Student Affairs Committee
August 26, 2019
University of Maine System Office
253 Estabrooke Hall, Orono

Revised - 8/23/19

9:00-9:35am

Tab 1 **Micro Credential Development at UMS: Overview of Report and Recommendations**

9:35-10:00am

Tab 2 **Strategic Drivers of Innovation and Academic Sustainability:**
Update: Academic Partnerships
Update: Directed Programming (Physical Therapy)
Update: Programs for Examination
Update: Multi-campus Collaboration

Tab 3 **Academic Program Proposal: BS in Data Science at UMA**

10:00-10:30am

Tab 4 **USM Name Change**

10:30-11:00am

Tab 5 **Enterprise Risk Management: Update and Discussion**

11:00-11:15am

Tab 6 **Review and Discussion of Academic & Student Affairs FY2020 Work plan**

11:15-11:25am

Tab 7 **Faculty Representative Discussion**

11:25-11:35am

Tab 8 **Student Representative Discussion**

11:35-11:55am **EXECUTIVE SESSION**

Following the Executive Session, the Committee will open the meeting to the public to take action on the following agenda items:

11:55am-12noon

Tab 9 **UM Tenure at Time of Hire, Professor, Mechanical Engineering**

Action items within the Committee purview are noted in green.
Items for Committee decisions and recommendations are noted in red.

Note: Times are estimated based upon the anticipated length for presentation or discussion of a particular topic.
An item may be brought up earlier or the order of items changed for effective deliberation of matters before the Committee.



AGENDA ITEM SUMMARY

1. **NAME OF ITEM:** Micro Credential Development at UMS: Overview of Report and Recommendations
2. **INITIATED BY:** Lisa Marchese Eames, Chair
3. **BOARD INFORMATION:** X **BOARD ACTION:**
4. **OUTCOME:** Strategic Priorities (Goal 1, Action 4) **BOARD POLICY:**
5. **BACKGROUND:**

As stated within the UMS Board of Trustees Declaration of Strategic Priorities to Address Critical State Needs (Goal 1, Action 4), “in collaboration with existing businesses, non-profits and community partners, UMS will develop coordinated workforce micro-credentials that are relevant in the workplace for economic development and expansion.” This Report focuses on the critical components of framework and recommendations which can build the platform upon which this initiative can grow within the UMS and across the state. The “state of the art” is such that substantial foundational work will need to be completed which expands connections and dialogue about credential development to employers and other partners and which builds more understanding and adoption of the concept of micro credentials within the UMS. While internal (UMS) and statewide conversations have begun around the development of an aligned micro credential “ecosystem,” those conversations are very much in the beginning stages.

Initiatives across the country are focusing on the development of micro-credentials that represent the attainment of critical skills and competencies of need for the workforce – both those that are considered 21st Century skills (the so called “soft” or foundational skills) and those that are more technical in nature. The Report and Recommendations of the Micro Credential Steering Committee presents a framework for micro credential development in the UMS and potentially statewide, along with a set of implementation recommendations including the identification of appropriate program delivery modalities and credential development, priority external partnerships, timelines and budget considerations. Ultimately, the goal is to implement and execute strategies to provide adult learners with affordable, flexible, stackable credential- and degree-based programming that is aligned with the needs of the adult learner population and their employers.

This is an evolving, transformational concept within higher education; the framework and recommendations contained within this report are designed to put the UMS at the forefront of this rapidly expanding approach to skill and credential attainment closely aligned with the needs of the state’s economy and workforce. This work is closely connected to several other UMS priorities including adult degree completion, workforce engagement, Early College and the work of the University of Maine Graduate and Professional Center. An overview of the report and recommendations will be presented by Dr. Claire Sullivan, Coordinator of Community Engagement and Associate Professor of Communication at UM and Rosa Redonnett, UMS Chief Student Affairs Officer.

**Micro-credential Development within the UMS:
Report and Recommendations
May 2019**

Prepared by:

The UMS Micro-Credential Steering Committee

Dr. Claire Sullivan, UM and

Rosa Redonnett, UMS, co-chairs

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Micro-credential Development within the UMS: Report and Recommendations May 2019

Introduction/Overview

Maine has established a statewide educational attainment goal of 60% of Maine adults ages 25+ having a post-secondary degree or a vocationally significant credential by 2025 (MaineSpark – adopted by Maine State Legislature 2018). Projections through 2026 and beyond clearly show a major shift toward a workforce that has at least some post-secondary education. Approximately 185,000-200,000 Mainers have some college but no degree, representing a significant “stranded” investment in their education and their futures. Coming out of the Adult Degree Completion Report and Recommendations (June 2018), developing a series of “stackable credentials” that enable adult learners to build their attainment across the continuum of credentials, and in accelerated course formats, will be an important additional level of program development; this will enable the UMS to better meet the needs of Maine’s employers and the educational goals of its people.

As stated within the UMS Board of Trustees Declaration of Strategic Priorities to Address Critical State Needs (Goal 1, Action 4), “in collaboration with existing businesses, non-profits, and community partners, UMS will develop coordinated workforce micro-credentials that are relevant in the workplace for economic development and expansion.” While the original charge called for the development of these by May 2019, this Report focuses on the critical components of a unifying framework and recommendations which can build the platform upon which this initiative can grow within the UMS and across the state. The “state of the art” is such that substantial foundational work will need to be completed which expands connections and dialogue about credential development to employers and other partners and which builds more understanding and adoption of the concept of micro-credentials within the UMS. While internal (UMS) and statewide conversations have begun around the development of an aligned micro-credential “ecosystem,” those conversations are very much in the beginning stages.

Initiatives across the country are focusing on the development of micro-credentials that represent the attainment of critical skills and competencies of need for the workforce – both those that are considered 21st Century skills (the so-called “soft” or foundational skills) and those that are more technical in nature. This Report and Recommendations of the Micro-credential Steering Committee presents a framework for micro-credential development in the UMS and potentially statewide, along with a set of implementation recommendations including the identification of appropriate program delivery modalities and credential development, priority external partnerships, timelines and budget considerations. Ultimately, the goal is to

implement and execute strategies to provide adult learners with affordable, flexible, stackable credential- and degree-based programming that is aligned with the needs of the adult learner population and their employers. In addition, this initiative has the promise to grow the concept of stackable credentials across a variety of youth programs (ex. 4-H, Early College) into and beyond higher education, and to further enrich academic programs for all student populations.

This is an evolving, transformational concept within higher education; the framework and recommendations contained within this report are designed to put the UMS at the forefront of this rapidly expanding approach to skill and credential attainment closely aligned with the needs of the state's economy and workforce. This work is closely connected to several other UMS priorities:

- The Adult Degree Completion Report (June 2018) formed the basis for the expansion of this work;
- the Workforce Engagement Report issued in March 2019 gave a preview of how this concept could be operationalized within workforce development and engagement with Maine's employer community;
- the UMS Research and Development Plan, 2020 recommends providing more experiential/innovation learning opportunities for our students which could potentially result in credentialing opportunities for both traditional and non-traditional students;
- Pathway and micro-credential development is a developing notion within our Early College initiative;
- The University of Maine Graduate and Professional Center (aka the Maine Center), through its engagement with the business community around graduate-level professional development, offers an opportunity to extend the concept of micro-credentials into the area of graduate education;
- Our focus on controlling student debt and making higher education more affordable for Maine's citizens is further supported by efforts such as these which can expand the opportunities for educational attainment beyond the age-old understanding that a degree is the only valid representation of attainment; stackable micro-credentials can ultimately result in skill/competency-focused achievement of valid, verifiable meta-badges that will be valued in the marketplace and can serve as jumping off points for progressing to the degree.

Overview of the State of the Field

Many education and training providers have entered into the market introducing new forms of credentials, such as digital badges, "nanodegrees," and various other forms of micro-credentials. The influx of these types of credentials has caused confusion and created "noise"

for various stakeholders. Even with this growth, there are indications that both student and employer needs are not being met. At this time, there is a lack of standardization and quality assurance processes in place surrounding micro-credentialing. Students do not have a reliable way to determine a credential's market value and its connection to other meaningful credentials.

Employers are requesting an easy way to assess the skills a learner has mastered and trust that the credential is both a reliable and valid indicator of competency. Universities need transparency to inform learners about the value of credentials for employment, career advancement and other specified outcomes. Micro-credentials offer a structured approach to developing workforce talent by providing a tool for employees to assess their skill sets and to create a trusted record of their efforts. This is important for upskilling employees/teams, advancing one's career, and improving employee engagement and retention. Employers also need to fill emerging, specialized skill gaps that are not yet addressed within traditional credentialing structures.

To address the complexity of credentials today, the Lumina Foundation along with Business Roundtable, launched Credential Engine in 2016. They are beginning to build a cloud-based Credential Registry around a common language. UMS and the Maine Community College System are participating in this national effort. A recent study from Northeastern University shows an increasing demand for job applicants holding certificates, micro-credentials and real-world professional experience, in addition to earning degrees (Gallagher, 2018). Employers are recognizing that lifelong learning is essential for becoming employed and remaining relevant in today's job market.

Verifiable digital credentials are becoming increasingly important as a way for educational institutions and employers to recognize multiple forms of learning. The concept of Open Badges originated from the research of Maine native, Erin Knight, founding Director at Mozilla, with collaborations within Mozilla and the MacArthur Foundation in 2011. Erin returned to Maine and the University of Maine became a founding partner of her Maine State of Learning initiative (2015). The goal was to develop an aligned digital badging ecosystem across the state. Since this time UMaine has worked to bring together state badging initiative to create a holistic and aligned framework.

[IMS Global](#) Learning Consortium, a nonprofit member organization, is now responsible for managing and advancing the Open Badges specification. They are working to develop new models of digital credentialing, to aid higher education in integrating academic, employment and career opportunities. These models will also decrease redundancy for students moving between institutions and employers throughout their lives. *Open Badges* is designed for

compatibility and interoperability with the other IMS standards such as the Comprehensive Learner Record, formerly called the Extended Transcript.

Open Badges are learner-centered and portable, containing metadata that provides information about the issuing organization, the criteria, and evidence to validate the rigor of the badge. Badge earners can store and share their badges across an open digital credentialing ecosystem (IMS Global).

Learning is more fluid today than in the past, especially for adult learners. Learners are circling in and out of higher education. As a result, there is an even greater need today for flexible pathways that lead to a credential of value. Associations and organizations, outside of higher-education are seeking new ways to train, identify and hire talent. Micro-credentials, based on industry/employer standards, provide market revenue potential traditionally under-tapped. From Executive Education, Professional Development, and other adult learning opportunities. It is imperative that UMS joins in on this trend by creating credentials of value to meet multiple state needs.

Students, needing flexible options, are turning to micro-credentials to master job-specific skills in a short amount of time. Employers are asking universities to improve their credentials as hiring signals. Micro-credentials are gaining traction as complements and supplements to degrees. Embedding work-experience into these credentials will aid in meeting employers' demand. Micro-credentials add evidence-based skill sets that complement the traditional and foundational degree. Quality assurance is an essential component of micro-credential's success. Higher education plays a pivotal role in validating evidence and assessing learning outcomes against established standards in order for these credentials to take hold.

Education Design Lab launched its 21st Century Digital Badging Skills Challenge to help meet the skills gap. The University of Maine was selected as one of seven campuses across the nation to participate in its "Tee Up The Skills" campaign. The goal is to understand the impact 21st Century Skills badges can have on the hiring process. Northern Light Health and Bangor Savings Bank participated in this yearlong pilot.

The University of Maine System is well positioned to lead the way by incorporating our framework and aligning efforts across the state. Members of the Steering Committee have been repeatedly told that Maine is ahead of the curve when it comes to micro-credential development. Don Fraser (Education Design Lab) stated, "University of Maine is a national leader in the digital badging space. While there may be other higher education institutions who can quote a larger number of badges awarded, they cannot point to the University's depth and breadth of work. What the University of Maine is doing thus far is more comprehensive and

thoughtful than other approaches to bundle smaller chunks of content and slap a badge on it. The Engaged Black Bear initiative is a model other institutions point to when they imagine how to achieve scale and impact. We believe UMS, broadly, is poised to be an example of how to create a learn and earn badging ecosystem that supports learners' and employers' needs in a global, connected and rapidly changing work environment."

Colleges and universities are piloting numerous micro-credential programs across the country and the world. A variety of strategies, with various goals, are receiving attention. No institutions or systems of institutions have figured out the best approach. The following is a broad outline of some of the approaches across the US:

- The University of Utah's Degree Plus Certificates are skills-based, non-credit credentials offered outside of their degree programs.
- The non-profit EdX, founded by MIT and Harvard offers high-quality Massive Open Online Courses (MOOCs) on an open-access platform.
- For-profit companies, such as Udacity, also offer similar online courses/modules, offering "nanodegrees" in tech fields. They recently integrated technical mentors, expert reviewers, career coaching and personalized learning strategies.
- The University System of Maryland, State University of New York System, and other University Systems are developing aligned policies and procedures
- The non-profit Digital Promise offers a series of granular, competency-based, professional learning micro-credentials for educators. They also partner with Universities to offer graduate level-credit.
- University Learning Store, a collaboration of universities, offers skills-based, non-credit, online learning credentials.
- Northeastern and IBM have partnered to offer IBM-issued digital badges within three professional masters programs.

We are witnessing a shift from seat-time learning and professional development to a competency-based model, based on educational challenges, societal changes, and demand from employers, both in degree-granting programs and non-credit programs such as those referenced above. Employers are looking for credentials that can verify skill attainment with evidence. Students who can demonstrate that they have the relevant skills employers need will stand out in the crowd. There is a great need to connect credentials to create clearly defined learning pathways that are based on intentional practice and real-world application.

Description of the Work of the Steering Committee

The Steering Committee was formed in late January 2019 and met every other week beginning February 14. Work began with an overview of the intent behind the Strategic Priorities of the

BOT, a “scoping” of the work to fit within the extremely short timeframe given for the issuing of this report and recommendations and a review of initiatives already underway within the UMS and state that would support the work. The decision was made to focus on:

- developing a framework concept that is flexible, engages partners within and outside of the UMS, and could support shared delivery across the campuses;
- issuing recommendations to include selecting an online portal to track micro-credentials and enable students to have access to their micro-credential record;
- estimating the budgetary and resource needs to support the micro-credential infrastructure, both by category and potential cost.

A review of the state attainment initiative (MaineSpark and Maine Adult Promise), the national credentialing initiative Credential Engine, and the discussions occurring statewide connected to developing alignment and an “ecosystem” comprised the beginning stages of discovery related to micro-credentialing. Numerous national, state and local resources and studies were shared via a shared google drive. Those initiatives within the UMS that seemed connected to this project were discussed - these included the Engaged Black Bear initiative, the discussions underway with Maine employers within the Maine Center, digital badging occurring within Cooperative Extension’s 4-H program, and curricular development within USM’s undergraduate business program specific to the addition of a micro-credential to degree requirements for 2020.

A survey was conducted across the System to determine what if any additional digital badging or micro-credential initiatives were underway; with the exception of the University of Maine, any that do exist are still extremely formative. Many certificates are offered within the UMS, some of which may be subdivided into badges. Badges may be stacked to culminate in a certificate, and certificates may be stackable into degrees (see the framework description). The Workforce Engagement Report (BOT, March 2019) was reviewed with the committee and overlaps between that report and the eventual recommendations of this report were identified; most significantly, the needed outreach and discussion with Maine employers and the learner engagement specific to the identification of their skill/competency development needs recommended within the Workforce Engagement report are the same as that which will be required for the development of micro-credentials within the UMS.

A separate subcommittee was formed to review what platforms exist for validating and tracking micro-credential achievement. The primary focus of this subcommittee was to formulate the requirements for an eventual RFP to select a platform and to gain a better understanding of the current state of this rapidly evolving technology (see appendix for RFP requirements). BADGR

and Portfolium were invited to give presentations about their respective platforms and to share their perspectives on where the technology will be developing in the future.

Education Design Labs (EDL), a non-profit organization that has as one of its foci micro-credentials and 21st century skill development, joined the committee to update it on the underpinning of developing this kind of ecosystem, discuss the key skill gaps as seen from the employer perspective, and to explore how badging could be expanded across the UMS. Documenting skills being learned within existing programs, considering both non-credit and credit options for micro-credentials, exploring stackable badges through various levels, and determining how best to engage employers in the identification of needed skills were all included within the next steps to be considered as the development of a UMS vision for micro-credentials occurs. The basic and transformational question that emerged was “how do we create a best-in-class micro-credential ecosystem that allows all Maine learners to intentionally and continually develop the needed combination of technical and 21st-century skills?”

Developing the UMS Framework: Essential Elements

In order for the UMS to reduce the “noise” surrounding micro-credentials for employers and learners, the proposed ***Micro-Credential Pathway framework*** should be branded and be consistent across all seven campuses and beyond. Introducing too many similar sounding badges will only increase confusion when assessing value. Our goal is to create pathways that can be implemented on any campus that would hold their value no matter where the badges were issued. Micro-Credential Pathways will incorporate three badge levels and a culminating meta-badge, as well as stackable “micro-badges.” The framework is outlined below. The pathway name will be agreed upon and the badge description, criteria, and acceptable evidence will be consistent. UMS Micro-credentials will be part of an aligned micro-credentialing eco-system across the State of Maine.

The UMS Pathway Framework will meet both business and industry needs and prepare engaged learners while helping them to develop highly marketable skills. A combination of a degree, experiential/applied learning, and stackable, competency-based credentials will put UMS students in a great position for lifelong learning and future job success. This framework endorses university-employer partnerships to aid in preparing learners to be successful in a dynamic, ever-changing world. Rigor and quality assurance are essential components of the framework.

Unique Micro-Credential Framework: Discover. Learn. Apply. Succeed.

The University of Maine System micro-credential pathway framework takes a unique approach to building pathways to higher education and employment opportunities. It is our view that competency must be developed over time, with ongoing feedback and reflection built-in to the structure. This flexible, collaborative framework sets UMS apart from other known micro-credential frameworks. With its attention to real-world application, our branded micro-credentials will instill trust and gain accepted value with employers and other stakeholders.

The following list highlights the basic elements of this framework:

- Incorporates three levels of stacked badges within a pathway structure that leads to a credential of value/meta-badge
- The three levels and meta-badge offer a developmental and unified, stable structure
- Granular, micro-badges can be stacked into our UMS micro-credential pathway badges for added value. Micro-badges can include external micro-credentials/badges, professional and industry credentials, UMS badges, and other badged and valued learning opportunities
- Stand-alone micro-credentials/badges can be developed, offering granular skills or training verification and a nimble way to meet ever changing demands. Once stacked into the pathways they can become part of obtaining a UMS pathway micro-credential
- UMS micro-credentials will be incentivized by employers/stakeholders for endorsed value
- A developmental, lifelong learning approach is integrated into the framework. A learner will be able to identify opportunities beyond earning a meta-badge.
- Evidence-based recognition of competencies for technical and 21st Century Skills adhering to standards with built-in authentic assessment
- Intentional practice and real-world application to meet learning outcomes and build-in authentic assessment practices
- Collaboration across UMS and throughout the state to align pathways and meet statewide employer needs, reduce micro-credential noise, and help to fulfill the missions of UMS campuses (UMS, MCCS, CTE, DOL, DOC, Youth, etc.)
- Organizes opportunities along pathways that will aid learners in identifying starting points and help to guide them in meeting milestones that will lead them toward the attainment of one or more credentials of value
- Systematizes relevant mentorship for “low stake” employer/stakeholder feedback
- Accommodates both credit and non-credit courses and co-curricular experiences

- Can accommodate a systematized process for Prior Learning Assessment or other appropriate measures of UMS micro-credentials to be recognized for formal credit toward degrees
- Accommodates various learning strategies and methods of delivery including face-to-face, online, and/or hybrid methods
- Accommodates both short-term learning strategies such as 1-3 day training and boot camps and longer duration courses and programs that take one or more years to complete
- Is flexible and can adapt to ever changing needs
- Accommodates multiple target audiences
- Consistent design and brand for easy recognition and trust building
- Aligns well with other state and UMS initiatives
- Aims to create a statewide badging/micro-credentialing ecosystem

There are three basic components to this framework including the primary *Leveled Badges*, *Stackable Micro-Badges* and *Aligned Partnership Pipelines*. The framework builds off the success of the University of Maine's [Engaged Black Bear Digital Badging Initiative](#).

Each pathway will utilize three “levels” of badges and result in a culminating meta-badge. The three levels are designed to will motivate learners to continue along the path and earn a credential of value. The levels are developmental in nature taking learners from basic introductory knowledge and skill building toward leadership positions and application of skills in a real-world setting. Each pathway will clearly delineate its alignment with workforce needs. Employers will be involved in the development of the pathways as well as in providing incentives and ongoing feedback. Involving employers at the beginning stages will increase badge value within the hiring process and beyond. (Please see the Employer Engagement section below).

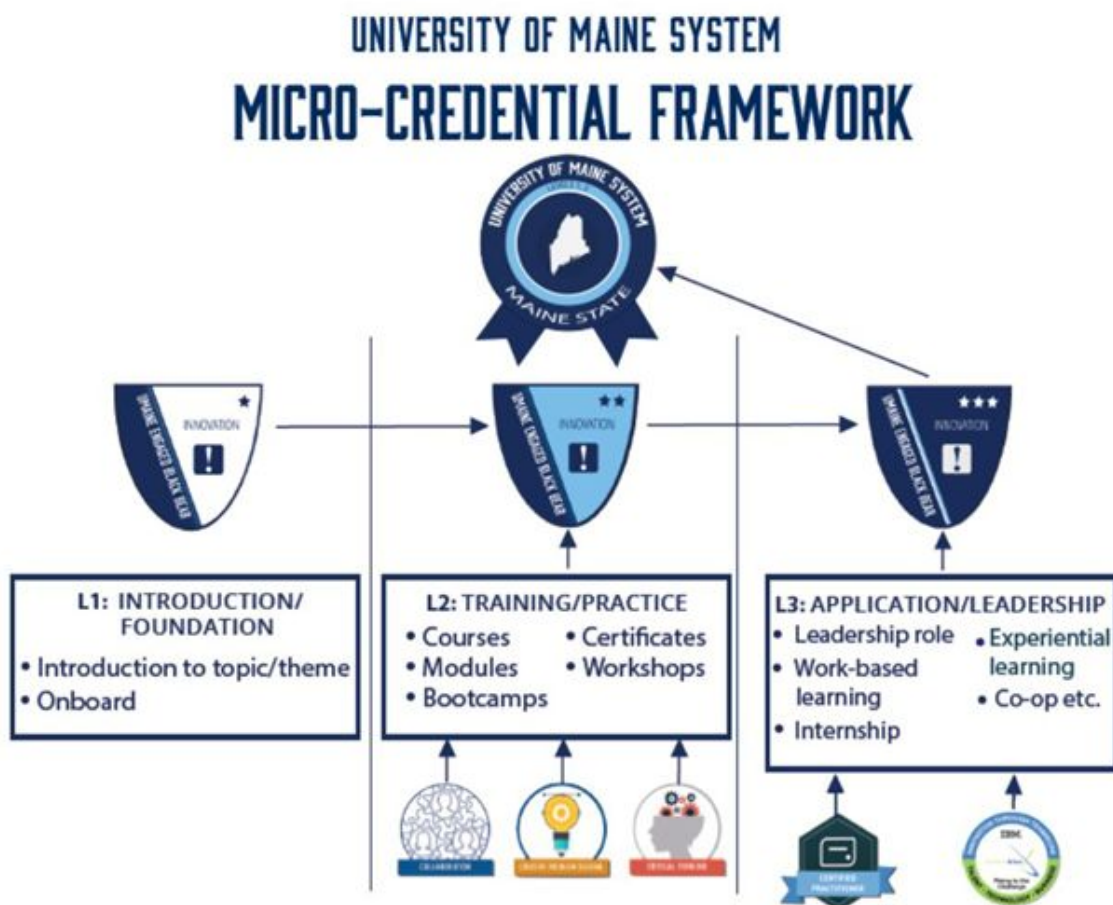
Overview:

A.Three Leveled Badges leading to a Meta-Badge/Credential of Value:

These badges are

- Level 1: Introduction/Foundation
- Level 2: Training/Practice
- Level 3: Application/Leadership in a real-world setting
- Meta-Badge/Credential of Value: Culminating badge – Level 1, Level 2,Level 3 badges are stacked into the meta-badge. Authentic assessment demonstrates a high-level of competency in selected skills sets. We propose that the meta-badge be offered at the

University of Maine System, pending all approvals and solved accreditation issues.
Criteria to meet a “Credential of Value” standard must be demonstrated.



What is a “Credential of Value” in the State of Maine?

In the State of Maine, a "Credential of Value" must meet workforce needs.

- Validated by an employer
- Lead to employment opportunities

The UMS framework is designed to support and aid in meeting the statewide attainment goal of 60% by 2025. In order to meet this standard, UMS Pathways will define “industry recognized credentials” important to the completion of each pathway and associated employer partners. Built-in stackable, granular badges and/or short-term credentials will help a learner take the steps needed to achieve the pathway meta-badge.

B. Stackable Micro-Badges

Micro-badges are flexible and nimble, designed to be used and/or taken down as workforce and learning needs change.

- **Granular Micro-badges** can be stacked into any badge within a pathway and can also serve as a stand-alone, granular learning indicator (e.g., 21st Century Skill badges).
- **Short-Term Credentials** are modeled after bootcamps and other short duration training opportunities (e.g., industry/Association credentials, IBM badges).

C. Statewide Aligned Partnership Pipelines

Stacked micro-credentials, (primarily) outside of UMS issued badges, build the pipeline to higher education and employment opportunities across the state. The Maine Community College System and CTE Centers are piloting badge initiatives with similar workforce ready and credential attainment goals. Alignment efforts are underway (e.g., Lumina All Learning Counts Planning Grant, United Technologies Center, Bangor). Formal partnerships are also underway with UMS, MCCS, MDOL/State Workforce Board, Department of Corrections, Maine State Library, and Educate Maine/Maine Spark. Aligning badges across the Maine State eco-system will be important to aid in degree completion; identifying appropriate programs for future development, including building further competency based education programs, as well as early college programs, are critical components of this (e.g., articulation agreements, credits, PLA, etc.). Built-in incentives and badge value are integral to this process.

Pipelines to Credentials of Value: Higher Education and Employment Opportunities:

Although the current development within Maine is limited, we know from our work connected to the report that there are examples under development at some of our campuses, beyond the work of the Engaged Black Bear.

Examples:

- **Youth:** We are presently building a youth pipeline to higher education and employment opportunities. The University of Maine's Cooperative Extension created the 4-H youth development pathway and other pathways are being discussed (e.g., Early College Programs). United Technologies Center, Bangor has worked on aligning their digital badging initiative with the Engaged Black Bear. Scholarships are awarded to meta-badge earners (currently 2 UTC students have earned \$2500 scholarship to attend UMaine, fall 2019). Several other discussions involving after-school initiatives, camps, K-12 schools, museums, and centers are taken place.
- **Executive Education:** The University of Maine Graduate and Professional Center (aka the Maine Center), in collaboration with Professional Development Programs at USM,

and the Dean of the Graduate Business School, is developing an Executive Leadership Consortium to serve the needs of Maine employers. Curricular planning, with input from senior HR officers from designated employers, is ongoing. The first cohort of participants is expected early next year and will serve as a pilot program for micro-credentialing in executive education. The program will consist of a rigorous 4-5 day intensive training (delivered over the course of 4 to 6 weeks) with the opportunity for micro-badges to be awarded within the UMS leveled framework.

- United Technologies Center, Bangor: Scholarships
- Incarcerated population across the state

Categories of proposed micro-credential types:

- **“Minor” micro-credentials:** This framework allows opportunities for learners to acquire “minor” micro-credential post-graduation. A minor micro-credential would offer a way for students to complete “minor” requirements and earn a credential after they have received their diploma.
- **Short-term, Relevant/Valued Topics:** The UMS framework can also allow for bundling of existing coursework to create short-term, themed micro-credentials for non-degree seeking students. Earning these micro-credential may spark further credential earning, contributing to lifelong learning opportunities. Although not the target audience, degree-seeking students may also be interested in the bundled micro-credential, completing it after graduation.
- **Professional Development:** We will aim to stack professional development opportunities to create credentials of value for those seeking professional development opportunities. We will work with CEU credits to incentivize the micro-credentials. UMS training/workshops and UMS Academy offerings may provide content to meet Level 2 criteria along a pathway, when applicable; this could serve as a valuable opportunity to increase credential attainment of our own employees.
- **Employer-Driven:** Market analyses will be conducted (e.g., Burning Glass job description reports and trends) and employers and industry sectors will be brought into the micro-credential development process. Employer engagement is key to building the value of the badges. We aim to build trust in the brand and will ask employers to incentivize the meta-badge for earners (e.g., read resumes, network, informational interviews, internships etc.). An ongoing process for continual employer input and feedback will be implemented. Pilots will help to validate the value of badges to employers within the state. Relevant reports will also inform pathway development (e.g., Educate Maine/Maine Spark and national reports).
- **Executive Education:** Executive education refers to programs and courses targeted at learners aspiring to take on executive roles or professionals already working in

managerial/executive roles. These programs last between one and six days but can take over a year to complete (part-time). These learners can earn short-term, stackable badges that align along the UMS pathway, leading to a meta-badge over time.

- **Continuing Education/Lifelong learning Pathways:** Personal interest and growth appealing to non-degree seeking students.

Pathway Development Procedures: Collaboration across the System (and beyond)

A system of collaboration will be developed to ensure that faculty/staff on each campus work together to create pathways to meet workforce needs. Collaboration is an essential component of this process. The process avoids duplication of efforts as well as the creation of similar sounding credentials. Our goal is to have a unified set of three leveled badges, leading to the meta-badge, which can be used across the system campuses. At a minimum, the partnership will include representatives from interested campuses and one employer (or employment sector as appropriate). Pathway partners will work together to develop a pathway's name, description, criteria, acceptable evidence, and assessment processes. Partnership members will hold regularly scheduled meetings, offering iterative feedback for continual improvement. MOAs will be created and signed. This process aids in quality assurance by mapping out the standards and assessments prior to issuing any of the UMS badges. In addition, there is an approval process for the inclusion of external badges into the UMS pathways.

With this emphasis on collaboration, developing a pathway will take time and effort. This thoughtful process cannot be undermined, if the initiative wants to see real impact and transformative change across the system. With that said, the framework further recognizes that flexibility and the need to be nimble are all essential components for success. Micro-badges allow for this type of flexibility.

How can the need for nimbleness and structure be accomplished in one framework?

The creation of micro-badges will provide nimbleness and flexibility, while the pathway badges provide the structure. Micro-badges can be created and taken down as workforce needs demand while the basic leveled structure of the pathway badges will remain intact. Pathway badge meta-data (e.g., description, criteria, evidence) can be "tweaked" as needed to accommodate the inclusion of new partners and changes in need along the way. Changes will be discussed and approved, through a speedy approval process. These types of alterations are, in many ways, similar to changes made in an academic course or program of study. This system is fluid, yet structurally stable.

UMS Micro-Credential Target Populations:

The following represent those populations to which micro-credentials could be promoted and marketed.

1. Degree-Seeking Students (Traditional Undergraduate and Graduate Students):

- Student engagement
- Leadership
- Career Readiness
- 21st Century Skill Development

2. Adult Learners: The different categories of adult learners who will benefit from our development of micro-credentials are below.

- Non-traditional degree seeking students
- Some college, but no degree
- Lifelong learning
- Upskilling, reskilling
- Continuing Education/Professional Development

In addition, the UMS was selected to complete a Lumina *All Learning Counts* Planning Grant (due June 21, 2019) based on a submitted RFI. The focus is on aiding adults 25 years of age or older to earn credentials of value with specific focus on underrepresented populations, incarcerated, low-income, veterans as examples. UMS is organizing this statewide effort. Micro-credentials are being developed to aid multiple populations, including the incarcerated (UMA, EMCC).

3. Post-graduation and Other Interested Learners (Continuing Education /Professional Development/Lifelong Learning): We will aim to more fully develop and connect various lifelong learning initiatives across the system, facilitating alignment of programs with employer needs.

4. Youth: Building a pipeline to higher education and employment through digital badges.

The following digital badges and pathways can be scaled across the system:

- Engaged Black Bear pathways
- Granular Badges: Education Design Lab: 21st Century Skills pathways

Assessment and Validation

It is important to track and assess the impact of micro-credentials in several key areas:

- Impact on students (e.g., retention, graduation, employment outcome, skill development, learning outcomes)
- Impact on employer acceptance, the role of micro-credentials have within the hiring process, satisfaction with hires, and value of the credential over time.
- Impact on the Institution: Revenue generation, student success, building the pipeline to the institution.

Assessment and tracking will include:

The number of badges issued, the number of shared badges on social media, the number of employers directly engaged in the development of the pathway and their use, the impact on developed skills on the workforce.

Badges go through a rigorous validation process to ensure credibility and build trust among the stakeholders. Evidence is submitted and vetted by faculty/staff to ensure rigor and to determine if the criteria for earning the badge has been met. Higher level badges require higher level work and associated evidence; those criteria are built into the badge descriptions.

UMS will work with the Chief Academic Officers, campus online or instructional design units (e.g., UM's DLL or CITL, UMA's ID unit, USM's CTEL), and Offices of Institutional Research/Assessment (System and campus-based) to develop a strategic plan, continue to assess the impact of badges through a data gathering process that will include employer, issuer, and earner surveys. Focus groups and interviews of key personnel will also take place, when appropriate. Employers/industry Sectors will have multiple opportunities to offer feedback into the planning process.

Pilot pathways will be assessed through After-Action Reviews, considering expectations, process, and outcomes. The review will provide guidance with the initiative moving forward. Employers will be part of the pathway development process. It is essential to have an ongoing feedback process in place to ensure that the micro-credentials issued throughout UMS remain up-to-date and valued by Maine employers and beyond. Engaging employers in the initiative may be shown to reduce training, recruitment and hiring costs for employers. Expected employers return on investment must be clearly articulated and actual ROI an economic impact must be tracked. Tracking progress along the pathway, completion of a meta-badge, and continuing on to advanced credentials should be tracked within the digital badging data system. The effectiveness of UMS-employer partnerships must be assessed over time. Data will provide valuable insights to improve the pathways and the initiative as a whole.

Connecting and Engaging the Employer Community

The Workforce Innovation and Opportunity Act (WIOA) emphasizes strong employer partnerships to better meet goals. Micro-credentials help employers identify job candidates who have the skills they are seeking and can serve the needs of a changing workplace. Employers can also request micro-credentialing programs to solve workforce challenges and upskill employees, providing needed training to their employees. Micro-credential pathways can aid in training professionals to meet specified standards of the industry/profession.

UMS will tap into the multiple employer associations and committees throughout the state, and employer advisory committees within the UMS, to obtain input and feedback. Employer engagement “best practices” will be followed to meet these objectives. Trying to find commonalities across industries may be one way to identify what those key skills are and tools like Burning Glass and EMSI are tools that can cut across jobs and occupations to look at the skills most in demand by the labor market.

With interest, an employer leadership committee may be formed. Determining who within UMS has relationships with potential employer partners will aid in the partnership building process, and involving key campus representatives (for example, campus core curriculum committee leads) in the employer leadership committee would demonstrate responsiveness to the needs of the employer community as well as be an important representation of the UMS commitment to the micro-credential initiative.

Members can address their workforce needs by training and retaining their workers and by hiring graduates with earned badges. Employers will benefit from obtaining real-time labor market information (e.g. Burning Glass or EMSI reports); they will have the opportunity to meet with other employers and identify common concerns in their sector.

An employer can help build program capacity through internships, mentoring, job site tours, networking events, on-campus guest speaker/panel discussion, informational or mock interviews, and curriculum/pathway review. Potential micro-credential learners (UMS students and beyond) will be informed regularly about opportunities with engaged employers, in order to increase interest in badges. Likewise, employers will be updated regularly about numbers of UMS/beyond learners in the pipeline to earn multiple levels of badges/meta-badges.

Resolving the dilemma of workforce experience for new graduates requires that our micro-credential initiative includes some meaningful, real-world experience. Our pathway design requires employer hosts (Level 3) where possible and practical. Hosting students offers the

opportunity for employers to get to know potential employees and to discover a potential long term hire. It is important to ask employers what kinds of on-the-job opportunities they would consider providing. We would seek to have employers endorse and/or sponsor specific, relevant pathways and recognize the badges earned. Employers may contribute financially for training opportunities or may choose to enter into a contract agreement and pay for employee training to meet ongoing needs. Obtaining buy-in from the leaders of the organization will be important, sending a valuable message to their employees (e.g., chief executives, business owners, and department heads/program managers, especially those in HR. A goal would be for employers to guarantee resumes reads and offer interviews to meta-badge earners. For example, Northern Light Health and Bangor Savings Bank offer to read all resumes of students who have earned the Critical Thinking Badge, offered at UMaine. Developing a financial framework involving employers will aid in the sustainability of the initiatives. Strong partnerships will build student mentorship relationships and authentic assessment of skill mastery (built into Level 3 badges).

Integration with Other UMS Priorities

As stated earlier, this initiative is closely aligned with several UMS priorities already underway (our ADC work, Early College, Workforce Engagement, work of the Maine Center, etc.). In addition, our hope is that as the opportunities presented by micro-credential development evolve, that these opportunities can do so in the same “multi campus” collaborative manner envisioned within some of our current work. Further, the concept of multi campus students, most specifically the reality of a student’s educational record being comprised of course work from multiple campuses, is especially well served by micro-credentialing and the opportunity to build a digital educational transcript which represents their learning across organizations and within higher educational institutions.

Connected to our adult degree completion priorities, we already have two significant faculty and professional development activities which will provide an opportunity for the addition of best practice learning connected to micro-credential development (the E-Learning Institute based at UMA and the SAALT Institute). We also are in the process of adding a position with marketing expertise (called for within the ADC report) which can also provide insight into the communication and marketing needs of this project.

Our work with Maine Spark and Maine Adult Promise (one of four strategic foci of Maine Spark) closely tie into this initiative, and our participation in the national pilot of Credential Engine (a national credential platform being developed and supported by the Lumina Foundation) is an

important connection to developments within the credentialing frame occurring nationally and to best practice approaches being employed in other states.

Also at the state level, the UMS has received a planning grant from the Lumina Foundation (through the aforementioned “All Learning Counts” grant initiative) to develop a full grant that would enable a pilot of how some of these micro-credential and alternate credential concepts could translate at a broader state level. Partners include the UMS, MCCA, Department of Labor, Department of Corrections, Maine Adult Education and the State Libraries.

At a more local level, the ultimate platform selected for our micro-credentialing work must closely align with whatever platform is selected for the learning management system (LMS) which will enable those developing micro-credentials to have a set of familiar and interoperable tools. There are many logical and connecting strands across the range of UMS priorities, an integration that, if done carefully and thoughtfully, could result in a far broader concept of workforce engagement and development for the UMS.

Recommendations

The ultimate implementation of a comprehensive digital badging initiative across the UMS, and potentially across the state, will call for a series of deliberate steps to build capacity and knowledge. Our preliminary recommendations are below and will be expanded upon as a part of the development of a comprehensive strategic implementation plan to occur over the summer 2019:

1. Implement and Pilot a Framework for Micro-credentialing: Refine the proposed framework for micro-credentialing which is flexible and adaptable into the future given the evolving development of the field. This framework should be able to accommodate both non-credit and credit [technical and 21st century] skill and competency digital badging leading to stackable credentials across the continuum of credentials of value (badges or other micro-credentials to meta credentials to courses to certificates and degrees). This framework will:
 - include potential for both undergraduate and graduate micro-credential development, including but not limited to executive education programming being developed by and pathways developed as a part of Early College and other youth development programs;
 - enable both internally developed micro-credentials as well as those delivered by third parties;
 - enable collaborative, shared delivery across our campuses.
2. Institute a design process associated with micro-credentialing: Contract with Education

Design Labs to work with the entire UMS in the design process to include 21st century skill development, skills mapping, employer engagement and best practices for faculty engagement.

3. Formalize the Micro-Credential Advisory/Steering Committee for the development of systems and structures: Form an ongoing Micro-credential Advisory/Steering Committee which will be charged with further developing formal systems and structures that will help our respective institutions value the work and see a clear path to implementation, involving a broad group of campus stakeholders - faculty, academic programs, professional development units, career counselors, PLA, internships, instructional design, information technology. These systems and structures include but are not limited to:

- Determination of appropriate structural/functional placement within the UMS,
- Oversight and management,
- Development of uniform processes by which micro-credentials can be recognized for formal credit within competency-based education (CBE) platform programs as well as traditionally delivered programs,
- Quality assurance,
- Implementation of platform,
- Development of faculty and professional learning experiences,
- Structure for employer outreach,
- Promotion and marketing to employers, faculty, staff (including but not limited to career services/development, enrollment management/admissions), potential and current students,
- Determination of appropriate fee structure,
- Identification of cost support for students,
- Development an implementation, ongoing assessment plan and long-term sustainability plan with clear timelines and resource needs (implementation begins fall 2019).

4. Develop a common glossary/vocabulary: Develop a common vocabulary across the UMS and with employers for all elements of this initiative (see appendix for example).

5. Develop Coordinated Workforce Micro-Credentials: Building off statewide work already in process, national work through Credential Engine, and in collaboration with K-12 and other postsecondary educational partners, existing businesses, non-profits and community partners, develop coordinated workforce micro-credentials that are relevant and recognized in the workplace.

- Use Burning Glass (or similar) labor insight and program insight skills data as background for industry-based focus sessions with employers to “ground test” the skills and competencies needed.

- Identify commonalities across industries and occupations;
 - Use secondary data to determine that set of skills that are in demand, have value in the labor market and the System can deliver and build programming around.
 - Engage with employers and industry organizations and other networks (identified through our faculty and staff who have reach across the state) to discover the skills of the future that will be demanded. When an industry association or advisory committee does not exist for a specific sector, employer advisory committees will be established.
 - Develop programs within the UMS that are responsive, nimble and adaptable to changing demands over time.
6. Identify “targeted opportunities” for stackable credentials: Identify targeted opportunities for development of stackable micro-credentials that are aligned with the needs of the non-traditional/adult population and their employers, and which will include “families” or “clusters” of skills/competencies from which students can choose. This same approach can also be used to serve the needs of traditional students. A possible opportunity for development of this idea could be within the core curriculum. This category of micro-credentials:
- may be regionally-based or statewide,
 - must be available in an accessible and affordable format in order to enable remote credentialing opportunities across the state;
 - needs to focus on the geography of the state and mirror the industry sector needs to that geography.
7. Identify and select a single platform: Identify the requirements needed for a robust and sustainable platform that provides learners with a single account for activity at multiple campuses and units across the state, initiate the RFP process and select a vendor for use by all campuses of the University of Maine System. The selected system must be interoperable with other badging systems and with national credential platforms (such as Credential Engine), and preferably must accommodate “stackable” pathways.
- Ensure that the LMS selected for UMS can accommodate a digital badging frame work.
8. Develop the concept of a Comprehensive Learner Record: In the long term, explore the development of a Comprehensive Learner Record/Extended transcript which would capture all coursework toward a degree as well as all micro-credentials. The University of Maine at Presque Isle is currently participating in a pilot project, co-sponsored by AACRAO and Lumina, designed to develop and implement a comprehensive learner record; their work on this pilot will be invaluable in our work within the UMS.

9. Develop a Plan for Communication, Education and Professional Development: Identify opportunities for development of faculty and professional staff adoption and knowledge enhancement related to micro-credentials:
- Develop a communications and professional development plan for internal stakeholders to promote the concept of micro-credentialing and its value in enhancing student outcomes and employability, and for potential and current students to encourage them to take advantage of these additional opportunities. The first stage of such a plan would be the roll out of this report and recommendations. Stage two would be the implementation plan (Summer 2019). Stage three would be ongoing updates of work in progress and roll out of new micro-credentials.
 - Develop a series of faculty and staff professional development opportunities connected to badge and micro-credential development.
 - Identify and make available a series of instructional design tools and techniques to enable development of badges and micro-credentials, including but not limited to clear policy and process guidelines to ensure aligned development across the UMS.
 - Develop an incentive program to enable innovation within micro-credential development and to promote and expand buy in and adoption. Ideas specific to this could include the integration of micro-credentialing into new program planning and existing program review processes. “Licensing” arrangements where a developed badge/curriculum could be shared across campuses and be used to spur on new development serves as another example.
 - When a critical mass of micro-credentials are available, develop a communications plan for external stakeholders specific to their availability and value in the workplace.
10. Ensure a linkage between Academic and Career Services: Establish a clear linkage between academic and career services earlier in a student’s career and incorporate skill/competency development as potentially one required component of a student’s academic and/or co-curricular program.
11. Develop a financial model that explores multiple options to address sustainability and long term funding: Identify and pursue appropriate grant and philanthropic funding for this Systemwide and, ultimately, statewide initiative, including strategic partnerships with the business and philanthropic community. Additionally, identify opportunities for revenue generation associated with micro-credential attainment (ex. Non-credit opportunities which result in micro-credentials or more comprehensive meta-credentials, etc.)

Timeline

The following timeline is preliminary. A comprehensive implementation plan with associated timelines will be developed over summer 2019.

- Report and recommendations to BOT May/June 2019
- Implementation, assessment and financial plan developed by Fall 2019
- Organizational structure in place and formal systems and structures determined Fall 2019
- Discussions underway with employer community and campus stakeholders Fall 2019
- Identify pilots Spring 2020 for Fall 2020 implementation
- RFP for platform and selection Summer-Fall 2019
- Continuing implementation with internal and external stakeholders - Ongoing

Resource Needs

The following resource needs are preliminary at this time. They will be further refined, and more specific dollar amounts will be assigned, as the comprehensive implementation plan is developed. In order to begin moving forward with this initiative, initial “start-up” costs would be for staffing (Director/Coordinator), developing the design parameters with Education Design Lab, and the selection and implementation of a credentialing platform.

Personnel:

- UMS Micro-Credentials Director/Coordinator, Approx: \$125K-\$150K
 - Work with internal and external constituencies
 - Develop Assessment/Tracking team
 - Train faculty/staff, offer support, badging platform and issuing oversight etc.
- Phase 2: Add Assistant Coordinator (titles to be determined) and Staff (budget, administrative support, etc.). Approx: \$150K
- Communication and Marketing Specialist (in Phase 1, this would be in concert with UMS Marketing/ Communications) System Marketing Specialist
- Campus coordinators for micro-credentialing (organizational chart and reporting responsibilities; release time or stipend) \$5K-\$10K depending on campus size
- Compensation for issuers Unknown at this time
- Project manager for grant coordination and aid in reporting (in Phase I this may be the Director/ Coordinator) – *assumes receipt of grant funding*

Operating/Non-Personnel:

Operating Budget	\$10-\$15K
Includes travel, marketing & promotion, event tabling, meetings with employers, etc.	
Professional/Faculty Development (ex. UM CITL, USM CTCL, SAALT, E-Learning Institute, etc.)	Approx cost: \$50-\$100K
Design parameters: Education Design Lab	Approx cost: \$100K
Instructional design	Approx cost: \$25-50K
Platform contract - one time and ongoing/maintenance (depends on RFP results)	Approx cost: \$150-\$200K

Barriers

A project such as this carries with it some obvious obstacles. While the list below is in all likelihood not complete, it is representative of the larger issues that will need to be fleshed out and resolved as we move forward with our micro-credentialing initiative. We have indicated possible solutions for all barriers identified.

Multiple initiatives underway which require faculty buy-in and participation: An innovation incentive fund with clear outcomes could encourage participation.

Lack of faculty and staff understanding and adoption of alternate approaches to curriculum development such as micro-credentials: This will need to be a part of a phase-in approach and both a communication plan and faculty and professional development opportunities will need to be in place. Providing the instructional design teams across the campuses with a clear charge around micro-credentialing, and providing the professional development to support it, will be an important addition to this work and will help reduce barriers to adoption.

Fragmented UMS understanding of the needs of the employer community: First-hand understanding of employer and workforce needs remains a challenge for UMS, and requires systemic processes for interaction with such employers, as well as partnerships with all state and non-governmental agencies, to ensure ongoing and meaningful alignment between academic programming and workforce needs. Our work with the Credential Engine project and our own project related to micro-credentialing demonstrates that this is an issue nationally, and one which will require extensive work within and across industries and regions to best determine the skills and competencies employers need. This can be resolved by a comprehensive engagement plan with Maine employers as described earlier within this report.

Fragmented employer understanding of micro-credentialing and credentials in general; employer articulation of needs and identification of skills/competencies and appropriate credentialing: Engage with employers, industry organizations, leverage networks (through our own faculty, professional staff who have reach across the state). Identify where these relationships exist, involve them in the determination of what skills/competencies need to be validated and this will help design a process that can help construct training and educational programs that will deliver value in the labor market. This issue could potentially be exacerbated if multiple badging initiatives across the state are developed – working toward statewide alignment will be critical.

Need for quick turnaround and evolving micro-credentials: What are the skills of the future that will be demanded and how can the UMS think about and respond to that in a nimble fashion? The skill demands change very quickly so we need to figure out how to respond quickly and efficiently to the demands of employers – the employment community can be frustrated with the UMS due to the difference in pace of how we move versus how employers need us to move - this will need to be addressed as a part of our micro-credential development occurs.

Lack of availability of funding to support learners' pursuit of micro-credentials: Because micro-credentials are not credit bearing in the traditional sense, learners enrolled in them do not qualify for Title IV/Federal financial aid. There currently are no funds specified to support this. As referenced within recommendation #3, determining a source of support for learners will be one of the next step implementation items.

Conclusion: Seize the Moment

This is an evolving, transformational concept within higher education; the framework and recommendations contained within this report are designed to put the UMS at the forefront of this rapidly expanding approach to skill and credential attainment closely aligned with the needs of the state's economy and workforce. Several campuses have already begun thinking about how to develop micro-credentials to best serve their students (at both the non-credit and credit level, representing both 21st century and technical skill development); some are mentioned earlier in this document.

The potential of this concept to expand UMS reach into the adult market is obvious – the ability to offer micro-credentials of need by the workforce gives us the ability to meet the needs of adult (and other) learners who may not need a full degree but rather need to evidence specific skill and competency development via micro-credentials and meta-badges. It gives us a way to engage with employers in ways we don't currently engage, and in so doing, to potentially

become their first source for quality micro-credentials for their employees, and to enable them to access all of our campuses via this work.

There will be substantial work required to further refine and implement the framework described, and to build understanding, buy-in, and support from both the employment community and our own internal stakeholders (faculty, staff and students). Saying that, this work has the potential, if done deliberately, thoughtfully and correctly, to provide a significant competitive advantage for the UMS, and to potentially enable it to form strategic partnerships with businesses, third party providers, and funders. Most importantly, it will enable the UMS to implement and execute strategies to provide adult learners and others with affordable, flexible, stackable credential- and degree-based programming that is aligned with the needs of the adult learner population and their employers, and which ultimately serves the needs of Maine's economy and its citizens.

Appendix

Attachment 1: Charter

University of Maine System Board of Trustees
 Declaration of Strategic Priorities to Address Critical State Needs
 Charter
 Micro-credentials for the Maine Workforce

Background -Maine has established a statewide educational attainment goal of 60% of Maine adults ages 25+ having a post-secondary degree or a vocationally significant credential by 2025. Projections through 2026 and beyond clearly show a major shift toward a workforce that has at least some post-secondary education. Toward this end, the University of Maine System (UMS) Board of Trustees (BOT) issued in December, 2018 a *Declaration of Strategic Priorities to Address Critical State Needs* to guide the UMS in 2019 and beyond. In the *Declaration*, Goal 1: Advancing workforce Readiness and Economic Development and Goal 2: Increasing Maine Educational Attainment require the following actions from the UMS and its campuses:

- "In collaboration with existing businesses, non-profits, and community partners, UMS will develop coordinated workforce micro-credentials that are relevant in the workplace for economic advancement and expansion."
- "The VCAA in coordination with campus leaders and , as appropriate, ...will develop by May 2019 regionally-focused credentials for current employment needs for all priority populations (including, but not limited to veterans, rural populations and new Mainers) that can be quickly adapted to future needs."
- "implement and execute strategies to provide adult learners with affordable, flexible, stackable credential- and degree-based programming that is aligned with the needs of this learner population and their employers. These strategies should identify target opportunities for the immediate development of appropriate program delivery modalities and credential development, priority external partnerships (e.g., DOE, DOL), and the needed resources and funding sources. A report of implement and execution status will be provided for the March 2019 Board meeting."

Although these are ambitious goals and deliverables, work has already begun in multiple arenas to address the need for a UMS system of stackable micro-credentials to serve the educational needs of Maine. For example, the following activities are currently underway:

- Current MOA collaboration with NEBHE and the Lumina-funded initiative to publish UMS high value credentials to Credential Engine's Credential Registry;

- Lumina-funded work identifying needed "Rural credentials;"
- Black-Bear Badging, initiated at UMaine, but now extended to other UMS campuses;
- Planning meetings regarding statewide credentialing, including funding requests to support future efforts;
- Executive education offerings through The University of Maine Graduate and Professional Center (aka the Maine Center);
- Current work with digital credentialing platforms (e.g., Credly);
- Emerging work to accelerate UMS Adult Degree Completion strategies;
- Other completed campus work, e.g., USM School of Business micro-credentials, UMF skills modules, and UMPI CBE pathways);
- Already launched statewide discussion of a framework for micro-credentials, involving the Department of Education, Department of Labor, the Maine Community College System, the University of Maine System, and others.

In addition, there is a great deal happening on the national front with regard to credentialing, and the framework that is developed in Maine has to be consistent with those efforts, i.e., Maine should not try to invent their own system, and should ensure that their efforts are consistent with a national strategy for micro-credentialing.

Given the variety of efforts described above related to micro-credentials, meeting the UMS BOT directives will include addressing an array of challenges, including:

- the various credentialing initiatives, as exemplified above, need to be integrated into a single credentialing UMS framework that is easily interpreted by potential students and employers, and is understood by faculty, career officers, student support staff and others responsible for delivering the credential and supporting credential earners;
- a System-wide strategy for delivery of micro-credentials must involve: alignment with national efforts (e.g., Credential Engine), collaboration* among the UMS campuses for each credential and/or a division of responsibility for each credential by campus;
**must include resolution of administrative/accreditation barriers to collaboration as identified by the VCAA.*
- significant interaction with employers to determine the competencies and skills to underpin UMS micro-credentials;
- development of a single, comprehensive, system-wide, micro-credentialing portal by which users access information and programming;
- a systematic way to communicate the value of each micro-credential to all relevant markets and stakeholders.

Charge: The University of Maine System, through the Offices of the Vice Chancellor for Academic Affairs, the Chief Student Affairs Officer, , cooperation with the System campuses, and others, will undertake the following activities in order to provide a status report in March, 2019 and a final report in May, 2019 to the UMS Board of Trustees:

- engage the appropriate organizational entities, within and outside the UMS, in the development of the scaffolding of skills and competencies for an easily understood hierarchy of micro-credentials for the state of Maine;
- use the ongoing work funded by Lumina regarding needed credentials for rural areas as a stepping stone for further surveying the needs of employers;
- propose a modular credentialing framework composed of families of competencies from which learners can choose;
- collaborate with the CAOs to develop a model for shared delivery of the micro-credentialing platform;
- develop a communications plan to explain the value of micro-credentials to all stakeholders.

Goals & Deliverables: The Steering Committee will:

- a) collaborate in the identification of workforce skills as needed through use of existing reports and information and/or interaction with employers and various service providers;
- b) identify and evaluate all existing credentialing strategies within the UMS;
- c) seek to engage faculty as appropriate in this planning process;
- d) coordinate a System-wide - if not statewide -discussion on the essential components of a micro-credentialing strategy that:
 - will serve Maine's workers, employers and service providers,
 - aligns with national efforts to systematize micro-credentials (e.g., Credential Engine);
 - expands pathways to further education and/or employment
- e) recommend a coherent operational structure for micro-credentialing that:
 - strives to include current UMS credentialing efforts;
 - strives to build a larger statewide framework for other Maine higher education partners;
 - encompasses "families" of needed competencies, or a similar strategy;
 - is built on inter-campus collaboration;
 - provides the organizational flexibility to embed current and future micro-credentials within the UMS;

- provides a glossary of essential terms to ensure common understanding;
- f) provide a timeline for implementation with milestones;
- g) identify institutional and System barriers impacting the implementation of a UMS micro-credentialing strategy, offering solutions where possible;
- h) make recommendations regarding development of an informational campaign to describe UMS micro-credentials;
- i) provide recommendations for the development of a UMS micro-credentialing platform, portal and service model;
- j) identify all one-time and ongoing resources necessary to accomplish these outcomes.

Reports and recommendations will be developed to meet Board of Trustees expectations.

Charter Modification This Charter may be modified with written approval of the Vice Chancellor for Academic Affairs.

Micro Credential Steering Committee

Membership

Report to: Robert Neely, Robert.neely@maine.edu, VCAA

Co-chairs:

Rosa Redonnett, rosar@maine.edu, Chief Student Affairs Officer, UMS

Claire Sullivan, claires@maine.edu, Coordinator of Community Engagement and Associate Professor, UM

Members:

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Paul Cochrane paul.cochrane@maine.edu _ Director of Online Teaching and Learning Center for Technology Enhanced Learning (CTEL), USM, representing ADC Steering Committee

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Grace Garland, grace.garland@maine.edu, Consultant,

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Karen Kimball <kkimball@maine.edu> DVCAA, UMS

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Heidi Parker <heidi.m.parker@maine.edu> Associate Professor, USM

Raymond Rice <raymond.rice@maine.edu> President and Provost, UMPI

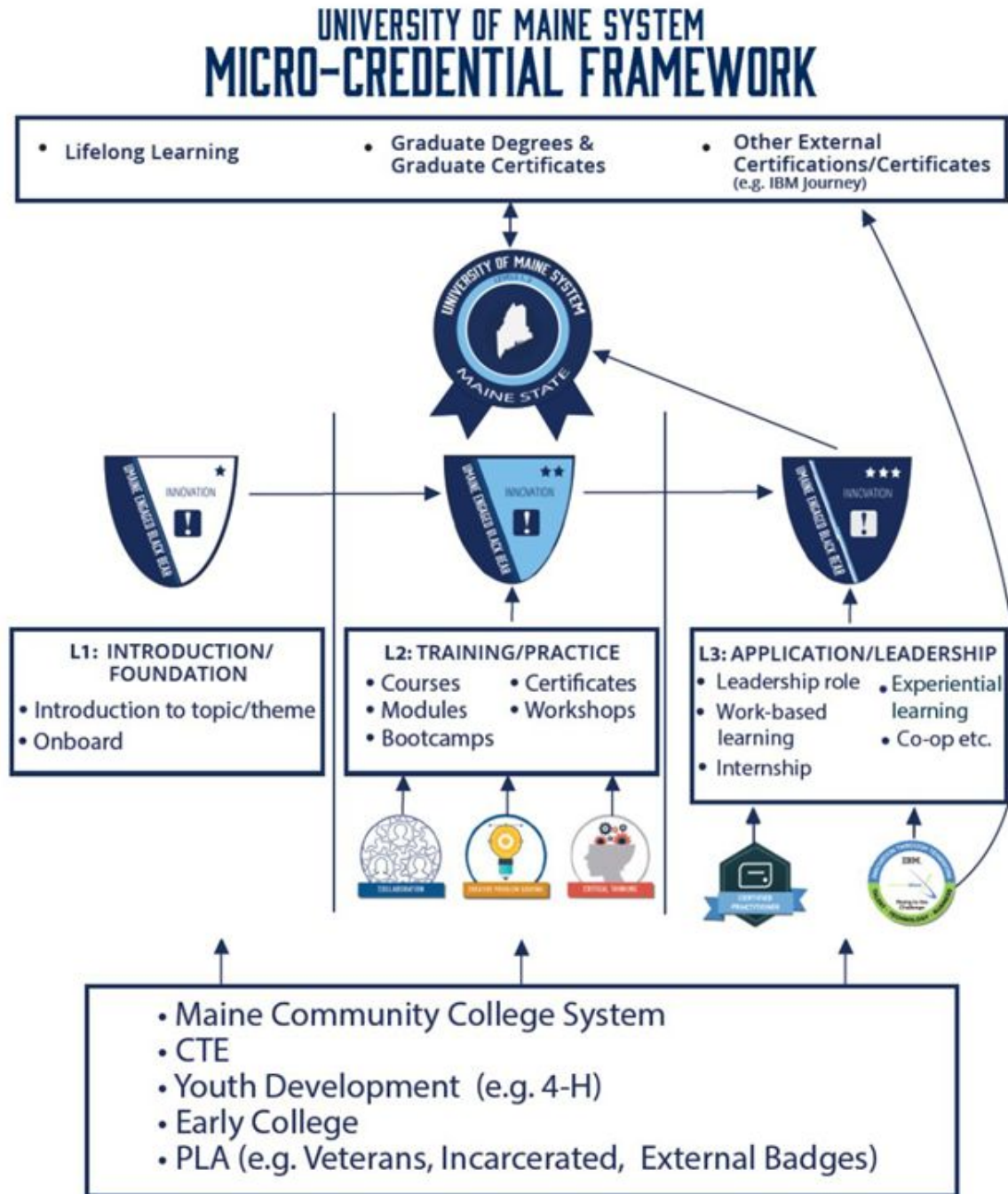
Theresa Sutton <tsutton@maine.edu> CEO,

Katherine Yardley <kyardley@maine.edu> Interim Provost, UMF

Renee Kelly <rwkelly@maine.edu> Assistant VP for Innovation and Economic Development

Laura Wilson <laura.wilson@maine.edu> 4-H Science Professional, Cooperative Extension, UM

Attachment 2: Framework Graphic



Attachment 3: Draft Requirements for RFP for platform**UMS Micro-Credential/Badge Platform Criteria*****DRAFT RFP Requirements***

- Must live outside any one institution (Cloud-based solution; not an on-site solution);
- Meets best practices: portable, transferable, verifiable, discoverable, stackable credentials (modular; meta-badges; milestones etc.) leading to “credentials of value” (modular) etc.
- Capability for supporting central hosting for campuses [look at software as a service or cloud]
- Interoperable with other platforms
- Pathways and alignment capabilities across systems
- Platform must be IMS Global Certified and Open Badging 2.0 compliant, ensuring employer searchability and access
- Expandable usage functionality and ability for software to be applied to other UMS and campus initiatives
- Both a badge hosting solution and badge issuing platform
- Ability to use Blockchain to award credentials; Potential for expansion into other verifications and certifications; Adaptability to change/alter as the ecosystem builds
- User-friendly graphical user interface to create and issue badges
- Provide dashboard for administrator, editor, issuer, and student dashboards; Ability to report analytics at the campus and System level
- Ability to provide individual as well as site licensing options
- Supports FERPA compliance and COPPA for youth; ADA Compliance; Web Content Accessibility (WCAG Level 2 AA) compliant; Voluntary Product Accessibility (VPAT); other?
- Verifiable, individual URL per badge; easy to verify issuer/issuing organization (trust)
- Provide learners with a single account for activity at multiple campuses and units across the State that would continue post-graduation
- Ability for learners to decide what’s private and what’s public. [Entire badge, not pieces]
- Learners embed their own evidence: Issuers may also embed evidence
- Ability to be included on any extended transcript UMS implements long term
- Ability for students to share credentials on social media such as LinkedIn, Facebook as well as sharing to Backpacks, e-portfolios, on admission or employment applications and the like etc. [Portability is key]
- Integration with real-time labor analytic
- Allow for extensive metadata to document learning outcomes, assessments, and links to student work
- Display UMS co-branding and levels to distinguish credentials that meet the UMS policy but allow for Customization as needed (e.g., white labeling)
- Provides a broad range of user support services (works with UMS to implement and innovate) - provide training and support to all stakeholders at the onset; Additional support/training available as needed

Attachment 4: Glossary of terms/vocabulary

UMS Micro-Credential Steering Committee Glossary of Terms

Badge

Use of digital technologies to represent learning achievements. Open badges use open standards that support interoperability and connections among systems and contexts. Badges can be created and awarded by institutions, organizations, groups, or individuals. Badges are flexible with regard to how issuers create them, define their use, and develop their criteria (which are publicly viewable, embedded in the badge, and verifiable). Therefore, badges are used to represent granular competencies as well as deeply linked, rich experiences and complex learning. Badges are being used in conjunction with and/or as modular components of traditional credentials such as degrees. Badges can link to evidence and can be used as representations of credentials. Badges can expire or be revoked, making them useful for credentials that are not continuously valid. Given their flexibility, badges bridge traditional, accredited credentials, professional and industry-recognized credentials, and non-traditional, experimental credentials ([Connecting Credentials](#)).

Digital Badge

- A digital badge is a validated indicator of accomplishment, skill, quality, or interest that can be earned in many learning environments ([HASTAC](#)).
- A digital badge is an innovative tool for capturing and validating a personalized set of accomplishments. Badges contain information about these experiences, including the criteria for earning the badge and the actual evidence provided by the earner (e.g., papers, videos and web links). Earned badges can be shared on social media sites such as LinkedIn, Facebook and Twitter ([University of Maine Engaged Black Bear Initiative](#)).

Open Badge

- An open badge is a digital record of achievement—a verifiable credential that describes specific skills demonstrated by an individual and often includes actual evidence used to evaluate the individual's achievement. Open Badges are a special type of digital badge based on adherence to the IMS [Open Badges technical standard](#), which contains not only a visual image but a set of rich metadata embedded directly inside the image file itself ([IMS Global](#)).

Certificate

- Certificates are awarded upon the successful completion of a brief course of study, usually one year or less but at times longer, primarily in institutions of higher education, university extension programs or non-degree granting postsecondary institutions like area career and technical education schools. Certificates are sometimes issued for participation or completion, other times for attainment of competencies. Certificates are used at many levels of knowledge and skills, ranging from foundational skills to learning at the postgraduate level ([Connecting Credentials](#)).

Certification

- Certifications indicate mastery of or competency in specific knowledge, skills or processes that can be measured against a set of accepted standards. These are not tied to a specific educational program, but are typically awarded through assessment and validation of skills in cooperation with a business, trade association or other industry group. After attaining a certification, individuals often must meet ongoing requirements to maintain the currency of the certification ([Connecting Credentials](#)).

Credential

- A documented award by a responsible and authorized body that attests that an individual has achieved specific learning outcomes or attained a defined level of knowledge or skill relative to a given standard. Credential, in this context, is an umbrella term that includes degrees, diplomas, licenses, certificates, badges, and professional/industry certifications (Lumina Foundation 2015a, 11; NEBHE; [Connecting Credentials](#)).

Credentials of Value

- Lumina Foundation’s working definition for credentials of value: Degree, certificate, or high-quality credential – leads to further education and “high quality” employment.
 - Leads to employment
 - Has labor market value
 - Majority awarded by educational institutions
 - Many who have certificate go on to get a degree
 - Credential of value or “good” certificate = 20% premium above HS medium wage ([MaineSpark](#)).

License

- A license is legal permission, typically granted by a government agency, to allow an individual to perform certain regulated tasks or occupations. Licenses are based on

some predetermined and standardized criteria, involving educational programs of study, assessments, and/or work experience. They are time limited and must be renewed periodically and often carry a continuing education requirement. Practice in a licensed occupation is restricted to those possessing a license ([Connecting Credentials](#)).

Micro-Credential

A credential that recognizes the acquisition of specific skills that is more granular than traditional degrees and other certifications. A digital badge can be a kind of micro-credential ([Educause, July 28 2017](#)).

Industry-Recognized Credentials: Industry recognized credentials are a type of micro-credential that can be incorporated into relevant degree programs to add even more value to applied degrees and give students additional portability of learning outcomes mastery. These micro-credentials are sought out by employers because they illustrate that students have attained skills and knowledge that are verified by an assessment created by professionals in the designated field. Students who attain these credentials illustrate that they have mastered professional competencies and colleges with high pass rates are viewed favorably by industry ([The State University of New York](#)).

Other Terms

- **A massive open online course (MOOC)** is a model for delivering learning content online to any person who wants to take a course, with no limit on attendance ([The State University of New York](#)).
- **Career pathways:** The career pathway approach connects progressive levels of education, training, support services, and credentials for specific occupations in a way that optimizes the progress and success of individuals with varying levels of abilities and needs. This approach helps individuals earn marketable credentials, engage in further education and employment, and achieve economic success. Career pathways deeply engage employers and help meet their workforce needs; they also help states and communities strengthen their workforces and economies ([Connecting Credentials](#)).
- **Career Pathway System:** A career pathway system aligns public partners and engages them in a continuous conversation that is led by industry to ensure that job-seekers and students move seamlessly through and among support programs, educational institutions, training opportunities, and work-based experiences to build skills and credentials that meet industry demand and prepare them for jobs and careers ([Colorado Workforce Develop Council](#)).
- **Connected Credentials** are those that can be linked meaningfully with other credentials. The term reflects connections and relationships among credentials, connections to

purpose and value for multiple stakeholders in multiple contexts, and connections to opportunities for credential earners. Connectedness includes several key dimensions, including transparency, modularity, portability, relevance, validity and equity. Connected credentials is a broader term than stackable credentials, also including other forms of connectivity, including lateral, latticed, nested, and other connections ([Connecting Credentials](#)).

- **Comprehensive Learner Record:** The goal of the [Comprehensive Learner Record](#) is to capture a student's complete picture of learning, from the earliest stages of planning to their achievements and competencies. The Comprehensive Learner Record standard (formerly called Extended Transcript) is a new generation of secure verifiable digital records for learners that contain all nature of learning experiences and achievements including courses, competencies, skills, co-curricular achievements, prior learning, internships, and experiential learning. Additionally, the Comprehensive Learner Record may include the learner's plan or pathway towards their goals ([IMS Global](#)).

Attachment 5: Abbreviated resource list/references

Micro-credentialing/Alternative Credentialing:

Resources and Literature

Last updated March 2019

URL: <https://tinyurl.com/microresources>

For more information, contact [Veronica Diaz](#), Director of Professional Learning, EDUCAUSE

EDUCAUSE Resources

- Developing a Higher Education Badging Initiative:
<http://www.educause.edu/library/resources/developing-higher-education-badging-initiative>
- The Potential and Value of Using Digital Badges for Adult Learners:
https://lincs.ed.gov/publications/pdf/AIR_Digital_Badge_Report_508.pdf
- 7 Things You Should Know About Badging for Professional Development:
<http://www.educause.edu/library/resources/7-things-you-should-know-about-badging-professional-development>
- 10 Lessons Learned in Launching and Award Winning Digital Badging Program:
<http://nextgenlearning.org/blog/10-lessons-learned-award-winning-digital-badging-program>
- EDUCAUSE Badging Program: <http://www.educause.edu/badging>
- Micro-credentials and Badging Constituent Group:
<http://www.educause.edu/discuss/information-technology-management-and-leadership/microcredentials-and-badges-constituent-group>
- 7 Things You Should Know About the Evolution of the Transcript
 - <https://library.educause.edu/resources/2016/1/7-things-you-should-know-about-the-evolution-of-the-transcript>
- EDUCAUSE Badging Resources
 - <http://www.educause.edu/library/badges>
 - <https://library.educause.edu/topics/teaching-and-learning/credentialing>
- Today's Comprehensive Record: An Evolutionary Case Study
<https://er.educause.edu/articles/2017/7/todays-comprehensive-record-an-evolutionary-case-study>

Other Articles and Examples

- <http://www.theaba.org/MOCA/MOCA-Minute>
- <http://connectingcredentials.org/>
- <http://www.credentialengine.org/>
- <https://rework.withgoogle.com/blog/whisper-courses/>
- <http://www.usmd.edu/cai/usm-digital-badging-initiative>
- <https://upcea.edu/pioneering-study-reveals-90-percent-colleges-universities-embrace-alternative-credentials/>
- <https://degreed.com/skill-certification>
- http://www.nxtbook.com/nxtbooks/smithbucklin/ice_digest_2017q3/index.php#/12
- Rethinking College, PBS Newshour: <https://www.youtube.com/watch?v=KGdHntLlcrq>
- Bringing Order to 'Badges': Nonprofit Works With Colleges on Framework to Measure Soft Skills, Apr 25, 2018: <https://www.edsurge.com/news/2018-04-25-bringing-order-to-badges-nonprofit-works-with-colleges-on-framework-to-measure-soft-skills>

- <https://evollution.com/programming/credentials/how-digital-credentialing-is-driving-the-shift-towards-a-learning-economy/>
- https://www.washingtonpost.com/news/grade-point/wp/2018/04/20/the-top-job-skills-schools-arent-teaching-well-and-its-not-coding-or-math/?noredirect=on&utm_term=.91c34a01ff02
- <https://workcred.org/>
- <https://er.educause.edu/articles/2016/5/credentials-reform-how-technology-and-the-changing-needs-of-the-workforce-will-create-the-higher-ed>
- <http://www.mckendree.edu/offices/provost/assessment/assessmentreport20162017.pdf>
- <https://eddesignlab.org/badgingchallenge/>
- <https://eddesignlab.org/21st-century-skills-badges/>
- <https://wellbeing.gmu.edu/articles/11072>
- <https://eddesignlab.org/2017/06/10-things-weve-learned-badging/>
- <https://sf-asset-manager.s3.amazonaws.com/96945/2/19.pdf>
- <https://www.snhu.edu/about-us/news-and-events/2018/04/snhu-receives-1-million-google-grant-to-design-a-soft-skills-assessment-for-opportunity-youth>
- https://www.washingtonpost.com/news/grade-point/wp/2018/04/20/the-top-job-skills-schools-arent-teaching-well-and-its-not-coding-or-math/?noredirect=on&utm_term=.ceab53ffd3a9
- <https://www.naceweb.org/job-market/trends-and-predictions/expanding-the-academic-record-revolutionizing-credentials/>
- Association badging examples: <https://www.wbtsystems.com/solving-skills-gap-digital-credentials-associations/>
- How Everyone Benefits from Badging: A Guide to Mainstreaming Digital Credentials: Elisabeth Rees-Johnstone | Executive Director of Continuing Education and Professional Learning at OISE, University of Toronto https://evollution.com/programming/credentials/how-everyone-benefits-from-badging-a-guide-to-mainstreaming-digital-credentials/?utm_source=Leading+Learning+Master+List&utm_campaign=5a48b27369-Leading+Learning+Newsletter+January+2018&utm_medium=email&utm_term=0_b683a1857e-5a48b27369-431342837&mc_cid=5a48b27369&mc_eid=e27e3526d0
- How Digital Credentialing is Driving the Shift Towards a Learning Economy: Louis Soares | Vice President of Strategy, Research and Advancement, American Council on Education https://evollution.com/programming/credentials/how-digital-credentialing-is-driving-the-shift-towards-a-learning-economy/?utm_source=Leading+Learning+Master+List&utm_campaign=5a48b27369-Leading+Learning+Newsletter+January+2018&utm_medium=email&utm_term=0_b683a1857e-5a48b27369-431342837&mc_cid=5a48b27369&mc_eid=e27e3526d0
- <https://www.zdnet.com/article/rmit-to-provide-students-with-blockchain-based-digital-credential-platform/>
- Credential engine report, April 2018: https://www.credentialengine.org/Content/Articles/Counting_US_Secondary_and_Postsecondary_Credentials_April_2018.pdf
- <https://er.educause.edu/blogs/2018/9/can-education-keep-up-with-technology>
- <https://er.educause.edu/articles/2016/4/microcredentials-and-educational-technology-a-proposed-ethical-taxonomy>
- Deakin Microcredentials: <https://www.deakinco.com/micro-credentialling>
- University at Buffalo: <https://www.buffalo.edu/micro-credentials/how-it-works.html>

- EDUCATIONAL CREDENTIALS COME OF AGE A Survey on the Use and Value of Educational Credentials in Hiring, Sean R. Gallagher, Ed.D., Executive Director, Center for the Future of Higher Education & Talent Strategy, Executive Professor of Educational Policy, December 2018
https://www.northeastern.edu/cfhets/wp-content/uploads/2018/12/Educational_Credentials_Come_of_Age_2018.pdf
- The value of micro-credentials and badging needs continual clarification, WCET, Dec 2018:
<https://wctfrontiers.org/2018/12/14/value-micro-credentials-badging/>
- [The ‘last mile’ in education and training](#). Ryan Craig, 2017
- [How Everyone Benefits from Badging: A Guide to Mainstreaming Digital Credentials](#). Elisabeth Rees-Johnstone | Executive Director of Continuing Education and Professional Learning at OISE, University of Toronto, May 2018
- [Pressed for Tech Talent, Hiring Managers Consider Online Credentialing](#) WSJ 2019.
- Purdue Competency-Based badges: <https://online.purdue.edu/ldt/learning-design-technology/digitalcompetencybadges>
- 21st Century Skills Digital Badging project: collaboration between the Foundation for California Community Colleges and the New World of Work (NWoW) initiative:
<https://foundationccc.org/What-We-Do/Workforce-Development/Workforce-Services/21st-Century-Skills-Badging>
- Education Design Lab 21st century skills badges: <https://eddesignlab.org/badgingchallenge/>
- University of Maine Digital Badges: <https://umaine.edu/engagedblackbear/>
- PBS News Hour, Giving students a leg up with job skills a resume won't show (2016):
<https://www.pbs.org/newshour/show/giving-students-leg-job-skills-resume-wont-show>

Higher Education Micro-credential Policies & Guidelines Websites

- Griffith University: <https://policies.griffith.edu.au/pdf/Digital%20Badges%20Policy.pdf>
- SUNY: <http://system.suny.edu/academic-affairs/microcredentials/>
- University of Buffalo, Office of Microcredentials: <https://www.buffalo.edu/micro-credentials.html>

Created and shared:

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LinkedIn: <https://www.linkedin.com/in/veronica-diaz/>



Overview: UMS Micro-Credentialing Report and Recommendations





Background

- An evolving national initiative focused on skill and competency development across both 21st century and “technical” skill areas of need by the employment community
- Transformational concept
- UMS at the forefront of this work
- Statewide “ecosystem” developing
- Foundational work needs to be done – within the UMS, with employers and within the state





Connections to UMS Priorities

- Development of report and recommendations one of the UMS BOT Strategic Priorities (December 2018) – Goal 1, Action 4
 - “in collaboration with existing businesses, non-profits, and community partners, UMS will develop coordinated workforce micro-credentials that are relevant in the workplace for economic development and expansion.”
- A recommendation within the ADC Report
- Connections to the UMS Research and Development Plan
- Connections to the work of the University of Maine Graduate and Professional Center (executive education)
- One element of the UMS Workforce Engagement Plan
- Connected to national and statewide work connected to credential and degree attainment

UMS

Micro-Credentialing Overview



Report Focus

- Work of the Micro Credential Steering Committee focused on:
 - developing a framework concept around which the UMS can build a fluid and dynamic ecosystem of micro credentials for developing and documenting evidence based skills and competencies that is flexible, engages partners within and outside of the UMS, and could support shared delivery across the campuses;
 - identifying barriers and strategies to resolve;
 - issuing recommendations to include selecting an online portal to track micro-credentials and enable students to have access to their micro-credential record;
 - estimating the budgetary and resource needs to support the micro-credential infrastructure, both by category and potential cost.





National, State and Local Initiatives



Lumina Foundation focus

- State attainment goals capture credentials AND degrees – “credential of value”
- “All Learning Counts” grant



UMS

Micro-Credentialing Overview



Digital Badging

Open Badges

THERE'S DATA INSIDE!

- badge name
- badge URL (description)
- badge criteria
- badge image
- issuer
- issue date
- recipient
- tags
- alignment (standards)
- expiration date
- evidence URL

City & Guilds

@bryanMMathers



Micro-Credential Framework

1. Three Badge Levels leading to a Meta-Badge:

- L 1: Introduction/Foundation
- L 2: Training/Practice
- L 3: Application/Leadership in a real-world setting
- Meta-Badge: State of Maine Credential of Value

2. Stackable Micro-Badges

3. Aligned Partnership Pipelines



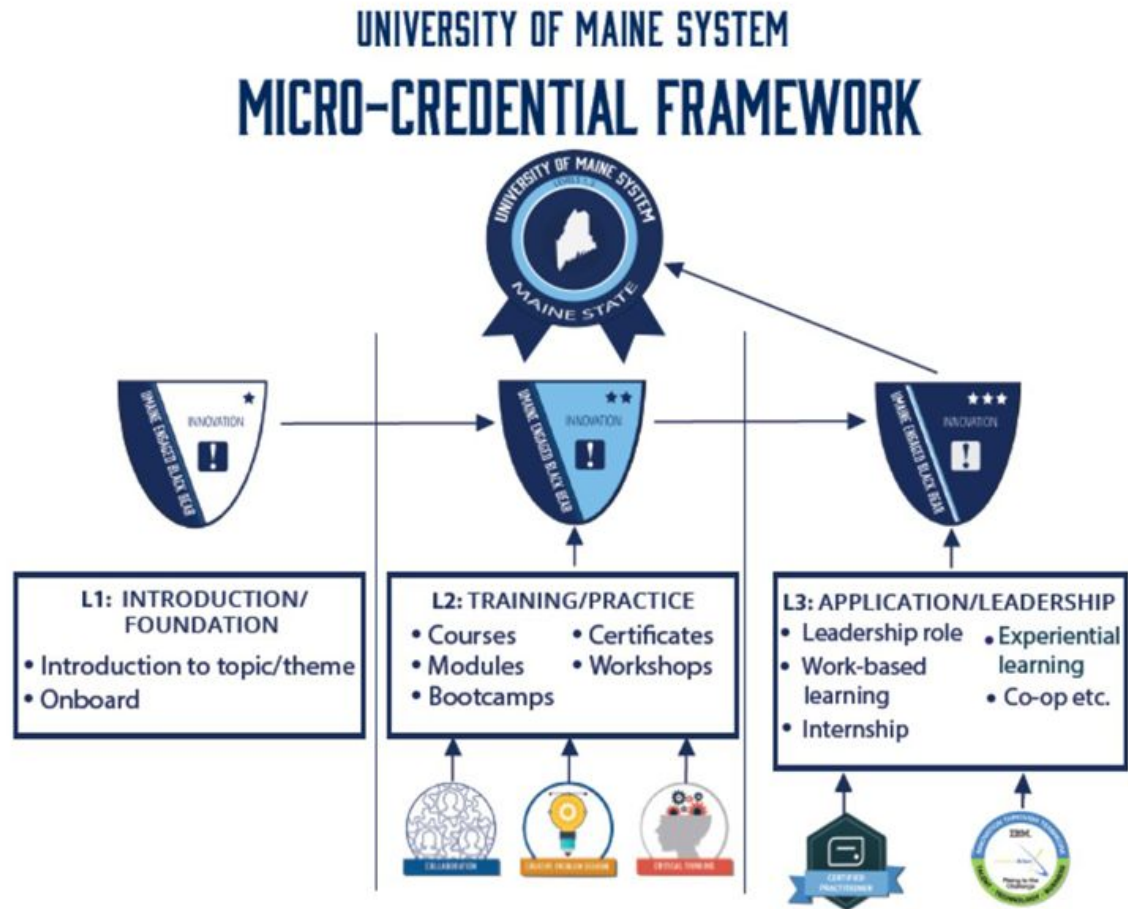


Unique Micro-Credential Framework

- **Branded:** Decrease noise, Gain trust
- **Structured with Flexibility:** Able to adapt and meet multiple objectives
- **University-Employer Partnerships:** Value, Rigor, Quality Assurance
- **Employer Engagement:** Incentivize learners and meet workforce needs
- **Portable, transparent pathways** toward credentials of value
- **Developmental, Lifelong learning** with multiple entry and exit points
- **Alignment and collaboration** across UMS and state



Developing the Framework





Categories of Proposed Micro-Credential Types

- **“Minor” Micro-credentials**
“Minor” micro-credentials post-graduation
- **Short term, Relevant/Valued Topics**
Bundling of existing coursework to create short term, valued micro-credentials
- **Professional Development**
Stackable credentials of value for those seeking professional development, teacher education, industry/association credentials, licensing exams preparation etc.
- **Employer-Driven/Executive Education**
Based on market analyses, employers and industry sectors will be part of the micro-credential development process
Programs and courses targeted at executives or professionals working in managerial/executive roles
- **Continuing Education/Lifelong Learning Pathways**
Personal interest and growth and upskilling



Challenges/Barriers

- Multiple initiatives underway which require faculty buy-in and participation
- Lack of faculty and staff understanding and adoption of alternate approaches to curriculum development such as micro-credentials
- Fragmented UMS understanding of the needs of the employer community
- Fragmented employer understanding of micro-credentialing and credentials in general; employer articulation of needs and identification of skills/competencies and appropriate credentialing
- Need for quick turnaround and evolving micro-credentials
- Lack of availability of funding to support learners' pursuit of micro-credentials



Recommendations

- Implement a Framework for Micro-Credentialing
- Institute a design process associated with micro-credentialing
- Formalize the Micro-Credential Advisory/Steering Committee for the development of systems and structures
- Develop a common glossary/vocabulary
- Develop Coordinated Workforce Micro-Credentials involving employers/sectors

UMS

Micro-Credentialing Overview



Recommendations

- Identify “targeted opportunities” for stackable credentials
- Identify and select a single platform
- Develop the concept of a Comprehensive Learner Record
- Develop a Plan for Communication, Education and Professional Development
- Ensure a linkage between Academic and Career Services
- Develop a financial model that explores multiple options to address sustainability and long term funding



Timeline (estimated)

May 2019 Report and recommendation to BOT

Fall 2019 Develop implementation, assessment and financial plans
Determine organizational structure in place and formal systems and structures

**Summer/
Fall 2019** RFP for platform and selection

**Fall 2019
& ongoing** Discussions underway with employer community and campus stakeholders
Continuing implementation with internal and external stakeholders



Budget Considerations

Staff

Phase 1

****UMS Micro-Credentials Director/Coordinator**

- Work with internal and external constituencies to develop pilot pathways
- Develop Assessment/Tracking team
- Set-up badging platform

Communication and Marketing Specialist (*this would be in concert with UMS Marketing/Communications*)

Phase 2

Assistant Coordinator (*titles to be determined*) and **Staff** (*budget, administrative support, etc.*)

- Develop training and tools
- Train faculty/staff, offer support, badging platform and issuing oversight for pilots etc.



Budget Considerations

- **Campus coordinators for micro-credentialing
- Compensation for issuers
- Project manager for grant coordination and aid in reporting (in Phase I this may be the Director /Coordinator – *assumes receipt of grant funding*)
- Operating Budget
- Professional/Faculty Development (*help from UMaine CITL, CTEL (USM), SAALT (USM), E-Learning Institute (UMA)*)
- **Design parameters
- Instructional Design
- **Contract/maintenance for platform

Approximate total budget when fully developed: \$775,000

Overview: UMS Micro-Credentialing

Questions





AGENDA ITEM SUMMARY

1. **NAME OF ITEM:** Strategic Drivers of Innovation and Academic Sustainability
2. **INITIATED BY:** Lisa Marchese Eames, Chair
3. **BOARD INFORMATION:** X **BOARD ACTION:**
4. **OUTCOME:** Relevant Academic Programming **BOARD POLICY:**
5. **BACKGROUND:**
 - A. *Academic Partnerships* – The implementation with *Academic Partnerships* continues to move along on schedule. Currently, the implementation is focused on wrapping up data integration and tweaking enrollment processes. The application deadline for Fall Session 1 is August 20 and courses start September 3. Ninety applications have been received and forty students have been matriculated so far. More than half of these applicants were for UMFK’s RN to BSN program. Future enrollment also looks promising with over 500 leads actively being pursued by AP. Phase two has begun in earnest. Phase two includes bringing on additional CBE programs at UMPI and launching some of the Nursing programs at USM by Spring Session 2.
 - B. *Directed Programming (Physical Therapy)* – Burning Glass analyses for postings in the field of physical therapy in Maine revealed 1,557 openings over the last 12 months (79.9% at the master’s level, and 20.1% at the doctoral level (DPT - doctorate of physical therapy), with only 100 degrees (DPT) conferred by the University of New England and Husson University. Job growth for physical therapists is projected to grow by 14.9% over the next decade. Job postings for physical therapists are particularly localized, e.g., 314 in Cumberland county, 210 in Penobscot county, 150 in York county on the high end versus 54 openings in Aroostook county. The substantial job demand in Maine versus the small number of degrees conferred indicates that physical therapy is a programmatic opportunity in the UMS. On this basis, discussions have been held at the Chief Academic Officers Council with consultants from the Commission on the Accreditation in Physical Therapy Education (CAPTE) regarding the details of launching a DPT program in Maine. Going forward, state certification requirements and CAPTE have determined that a DPT will be the minimum credential to practice as a physical therapist. Thus, the CAOC is recommending that the UMS move forward with developing a DPT for the UMS Program Inventory. The lead UMS campus has not yet been determined for the DPT, but the System’s requirement is that this be an online-hybrid program available throughout the State. Developing a DPT likely will take a minimum of 3 years in order to gain CAPTE recognition.
 - C. *Programs for Examination* – Although the 2018-2019 launch of the Programs for Examination process concluded with presentations from the UMS Provosts at the May and June, 2019 Board of Trustees meetings, the 2019-2020 process began anew on

8/15/19

August 1, 2019. For the coming year, the FTE of faculty supporting a program was added as a program indicator to last year's measures of number of majors and graduates (3-year rolling averages). In addition, information will now be tracked in those programs for which action steps were identified in 2018-2019.

- D. *Multi-Campus Collaboration* – The mission of the Maine Geospatial Institute (MGI) is to “provide a statewide infrastructure for integrating geospatial education from K-12 to post-graduate and continuing education, with geospatial research and technology development, and link education and research initiatives to various stakeholders to facilitate technology transfer, project collaboration, and research and development partnerships.” The MGI faculty group, with financial support from the UMS, has been working over the last year to organize themselves into cross-campus entity akin to a “virtual department.” The group has begun to cross-list key geospatial information systems (GIS) courses and has proposed a set of by-laws to govern their functions. Leaders from the MGI group will provide a brief report on their accomplishments and plans.



AGENDA ITEM SUMMARY

- | | | |
|----|--|---|
| 1. | NAME OF ITEM: Academic Program Proposal: BS in Data Sciences at UMA | |
| 2. | INITIATED BY: Lisa Marchese Eames, Chair | |
| 3. | BOARD INFORMATION: | BOARD ACTION: X |
| 4. | OUTCOME: Relevant Academic Programming | BOARD POLICY: 305
New Program Proposal |
| 5. | BACKGROUND: | |

The Vice Chancellor granted temporary approval to The University of Maine at Augusta (UMA) for a new Bachelor of Science in Data Science, since the program meets a critical need in the UMS and the State of Maine. The ability to create, manipulate, and analyze massive data sets is emerging as a core skillset in the 21st century economy; thus, this program is intended to offer such competencies to students in traditional majors or to working adults wishing to develop new skills. The market research conducted on behalf of the UMS by Ruffalo Noel Levitz demonstrated substantial growth at both the national and regional levels (633% over a five year period) for “analytics” as an emerging workforce need. Accordingly, the goals of this degree were listed to:

1. “provide quality baccalaureate level education in the field of Data Science;
2. enhance knowledge, technical skills and tools that can be immediately applied in the workforce;
3. develop a pathway to graduate education in the STEM fields;
4. fill the demand for data-driven decisions making all sectors and industries.”

It is envisioned that initially the Data Science major will offer two tracks: Business Analytics Track and Social Science and Health track. A particularly appealing aspect of this program is the collaboration between UMA and University of Maine at Farmington (UMF), to include 1-2 credit, online technology modules. The future intent is to also align this program with UMF’s actuarial and advanced statistics expertise. Furthermore, the data science undergraduate degree provides a pathway for UMS students to pursue a UMS Master’s Degree in Data Science - the Intent to Plan for this Master’s degree has been submitted by the University of Maine and approved by the Chief Academic Affairs Council, with an opportunity for collaboration between the UM and University of Southern Maine.

This program anticipates no new equipment, library or facilities requirement. The needed equipment was funded as part of a 2018 Program Innovation Fund award. Course cross-listing and existing faculty from UMA’s Computer Information Systems and Cybersecurity programs will be used in the initial stages of the data science program offering.

8/15/19

6. TEXT OF PROPOSED RESOLUTION

That the Academic and Student Affairs Committee forwards the following resolution to the Consent Agenda for approval at the Board of Trustees meeting on September 15-16, 2019.

That the Board of Trustees authorizes the creation of the Bachelor of Science Degree in Data Science for the University of Maine at Augusta.

8/15/19



Vice Chancellor for
Academic Affairs
15 Estabrooke Drive
Orono, ME 04469

Tel: 207-581-5842
Fax: 207-581-9212
www.maine.edu

To: Dr. Becky Wyke, President, University of Maine at Augusta
Dr. Joe Szakas, Provost, University of Maine at Augusta

From: Kay Kimball, Deputy Vice Chancellor for Academic Affairs (DVCAA) *KKimball*

The University of Maine Regarding: VCAA Temporary Approval: Bachelor of Science in Data Science

University of Maine at Augusta Date: June 17, 2019

University of Maine at Farmington Section 305.1 of the University of Maine System Board of Trustees Policy allows the VCAA to grant temporary approval to a program that meets a workforce development demand in the State of Maine. Acting as the Deputy VCAA, and on behalf of the VCAA, I am granting temporary approval for the University of Maine at Augusta to launch its recently proposed Bachelor of Science in Data Science in the Fall 2019 semester. This decision was determined on the basis of:

- University of Maine at Machias a. previous review by and unanimous support of the CAOC;
- University of Maine at Presque Isle b. the absence of a BOT Academic and Student Affairs Committee meeting in July 2019, at which time this proposal could have been considered by BOT members;
- University of Southern Maine c. the proposed program clearly meeting a workforce need.

The program proposal will be reviewed at both the ASA committee meeting and regular meeting of the BOT in September 2019 for consideration of final approval. Please do not hesitate to contact me with questions.

cc:
James Page, Chancellor
Bob Neely, VCAA



Curriculum/Policy Change Proposal

TO: Dean Brenda McAleer DATE: March 28, 2019
FROM: Dr. Matthew Dube

Listed below is an academic change which requires your approval before appearing in the UMA Catalog.

CHECK ONE (Please see reverse for description of Class A, Class B and Minor changes):

- This is a Class A change.
- This is a Class B change.
- This is a minor change which requires approval of the College and Provost only.

DESCRIPTION OF CHANGE:

We are proposing a new Bachelor of Science in Data Science degree



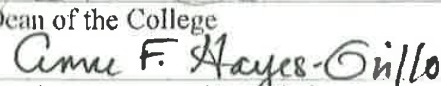
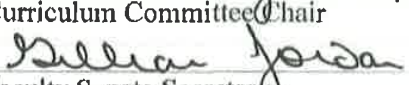


NOTE: If the change impacts course charter (e.g. course description, learning outcomes, methods of evaluation), please attach both current and new charters.

EFFECTIVE DATE OF CHANGE: Fall 2019

RATIONALE FOR CHANGE:

The field of data science is growing in importance and relevance to the business and social science fields. This degree proposal includes core CIS courses and a choice of a Business or Social Science track.

SIGNATURES OF APPROVAL:

 Coordinator	<u>3-28-2019</u> Approval Date
 Dean of the College	<u>3-28-19</u> College Approval Date
 Curriculum Committee Chair	<u>5/10/19</u> Committee Approval Date
 Faculty Senate Secretary	<u>5/15/19</u> Senate Approval Date
 Provost	<u>5/16/19</u> Date
 President	<u>5.21.19</u> Date



Data Science Baccalaureate Degree Proposal



Data Science Baccalaureate Degree Proposal

I. Full Program Title: Bachelor of Science in Data Science

II. Program Objectives

A. Narrative Description of Program Rationale

The Bachelor of Science in Data Science is designed to be consistent with UMA's Computer Information Systems program which is a very pragmatic business leaning program that focuses on developing skills and utilizing tools that can be quickly applied in the workplace.

Data science is becoming a key core competency for many disciplines outside the IT arena. The ability for students, and faculty to create, manipulate, and analyze large quantities of data and information are skills needed today in almost every (if not all) academic disciplines. Given the wide range of students, this will serve traditional undergraduates looking to augment work in their majors as well as non-traditional students who may be looking to add new skills while they work. All required coursework would be online, reaching a student pool beyond the traditional student possible.

B. General Program Goals.

The goals of the Bachelor of Science in Data Science at the University of Maine at Augusta are to:

1. provide quality baccalaureate level education in the field of Data Science
2. enhance knowledge, technical skills and tools that can be immediately applied in the workforce
3. develop a pathway to graduate education in the STEM field(s)
4. fill the demand for data-driven decision making in all sectors and industries

C. Specific Student Outcomes

Upon successful completion of the program, the student will be able to:

1. develop quantitative and qualitative analysis skills
2. demonstrate effective data collection and preparation techniques
3. interpret and communicate findings
4. apply problem-solving, analytical, critical thinking and decision making skills in the workplace
5. demonstrate knowledge in the areas of data management and social responsibility

III. Evidence of Program Need**A. Existence of Educational, Economic and Social Needs**

There is a growing demand nationally and statewide for data-driven decision making in the workplace. Maine falls below the nation in its capacity to fill this need. Over 400 data science business analytics at the bachelors, masters and doctoral levels exist around the country <http://datascience.community/colleges>. Note: there are none listed in Maine.

The market research conducted on behalf of the System by Ruffalo Noel Levitz showed substantial growth at both the national and regional levels (633% over a five year period). This research underscores the need for analytics as an emerging workforce need in the State.

A study by *CareerCast.com* states, “data scientist jobs have the best growth potential over the next seven years, as they are one of the toughest jobs to fill.” The study further claims, “A quick search for data scientist jobs in the United States on *LinkedIn* reveals over 13,700 open positions. Additionally, a job trends tool by *Indeed*, which showcases the demand for data scientists reveals that both data science job listings and job seeker interest are showing no signs of slowing down.”

A market demand study report for the Maine Space Entrepreneur and Innovation Complex Steering Committee recommends establishing a Data Analytics Research Center to expand Maine’s commercial outlets for innovators and students in Information Sciences and Data Analytics by bringing academic and commercial stakeholders in applied information sciences, and investing in access to a breadth of leading-edge data from multiple domains.

B. For 2 year Programs

Not applicable

C. Existing Similar Programs

There is an increasing pressure throughout New England to integrate data analytics into multiple disciplines. In 2018, the University of New England announced the development of a Bachelor of Science in Data Science program to increase students skills in data mining, statistical and machine learning, predictive modeling and data visualization. Similarly, Husson University currently offers a Bachelor of Science in Data Analytics with concentrations in biostatistics, computational analytics and business analytics.

UMA's BS in Data Science curriculum will consist of new and existing courses, with the core courses in mathematics and computer science, with concentration/track areas such as Business, Social Science and Health. The alignment with Computer Science and Data Science is very tight, so approximately 70% of the courses are already created and running in support of the CIS and Cyber Security degrees. It is hoped that the graduates from the BS in Data Science or students with certificates or minors in Data Science (primarily designed by faculty at UMF) would be well positioned to enter into the Masters of Data Science currently being developed at USM or at UM.

D. Enrollment Projections for Five Years

UMA sees the enrollment opportunity as strong and in line with other computer science /computer technology/computer information systems/cyber security programs. It is worth noting that significant math requirements may be a negative factor, but the support needs from other programs, industry demand, and research potential, should offset this concern.

IV. Program Content

The Bachelor of Science in Data Science curriculum was developed alignment with Computer Science, Cyber Security and Data Science certificates, minors and degrees. The curriculum provides a pathway to obtain a Master's Degree in Data Science which is currently being developed by USM and UM.

A. Outline of Required Courses

Bachelor of Science in Data Science (120 credit hours)

Program Core	55 credit hours
Mathematics	13 credit hours
Other Program Requirements	28 credit hours
Communications (3)	
English (6)	
Fine Arts (3)	
Humanities (6)	
Lab Science (4)	
Social Science (6)	
Business Analytics Track	24 credit hours
Social Science Track	24 credit hours

B. Development of New Courses

The following courses have been cross-listed with other courses and/or developed for the Bachelor of Science in Data Science:

CIS 150	Introduction to Data Science
CIS/DSC 352	Data Visualization
CIS/DSC 355	Introduction to Sensors
CIS 360	Geographic Information Systems
CIS/DSC/MAT 370	Statistical Quality Control
CIS/DSC 449	R Programming, Package Development and Applications
CIS/DSC/MAT 450	Data Mining
CIS/DSC 461	Spatio-Temporal Information Sciences
CIS/DSC 475	Advanced Health Informatics

The BS Data Science check sheet, course proposals and curriculum changes are found in Appendix A.

C. Research Activity in Program Design

Within the curriculum development, UM is creating data science modules for middle and high school students. This effort will be led by UM and the 4-H STEM Ambassadors in consultation with the other institutions in the proposal. It has been shown that students begin to make decisions on academic fields of interest as early as the 8th grade. Introducing the opportunities to these growth areas are key for a vibrant Maine economy. The 4-H STEM ambassadors have been providing STEM education activities and learning opportunities to K-12 students throughout the State of Maine for many years, and expanding into this new

area of data science, without losing its support of other STEM disciplines, is essential. Revising and expanding their inventory of ten educational kits starting with their Maine Lakes Kit which will develop new learning activities that include statistical analyses and data visualization of Maine Lake/water quality.

The curricula at the top 5 “best” data science programs in the country were reviewed as this curriculum was being designed. This proposed curriculum allows us to move forward while positioning ourselves for adding a Machine Learning course in two years.

D. Nature of Independent Study, Clinical Experience, and/or Field Practicums Employed in Curriculum Design

Students in the BS Data Science program are required to complete an approved internship in one of three areas: Computer Information Systems, Business or Social Science or an independent experience as appropriate to the concentration.

To properly support the Data Science effort within all institutions of the UMS, there must be infrastructure created to support this data science effort both academically and for research for both faculty and students across the UMS. Large scale data sets needed by Data Science courses will need a place that is accessible as well as providing high performance. A centralized location that will support the storage, manipulation and analysis which can be accessed remotely is critical to this effort. Students will be able to practice manipulating data in this central location rather than manipulating employers’ data on their servers.

E. Impact of Program on Existing Programs on the Campus

The BS Data Science degree will be offered as a part of a collaboration between two of UMS institutions, namely UMA and UMF. It is believed there will be an increased enrollment in STEM related disciplines. The curriculum will consist of a combination of new and existing courses, with the core courses in statistics, computer science, and professional writing to be offered in face-to-face settings in fall and spring semesters and online in winter and summer terms. The 1- and 2-credit technology modules will be offered entirely online in the winter and summer terms initially, potentially offering them in fall and spring based on demand in the future.

Work is continuing with UMF to align this program with UMF’s actuarial degree and their advanced statistics expertise.

V. Program Resources

A. Personnel

UMA currently employs four full-time faculty in the CIS/Cyber department and is currently searching for a fifth faculty member to join the department. UMF has assigned three full-time faculty to work on their data science support efforts, via the PIF grant. USM has assigned a full-time faculty member to participate in the curriculum development and course review for the Masters in Data Science, which is also supported with a PIF grant.

1. Vita of Faculty

Faculty teaching in Computer Information Systems and Cyber Security will teach in the BS Data Science program. Vitae of these faculty can be found in Appendix B.

2. Specific effect on existing programs of faculty assignments to new program

There is minimal effect on current full-time faculty at UMA. Since many courses are cross-listed, any additional courses taught by UMA faculty will be an overload to current teaching assignments in CIS and Cyber.

B. Current Library Acquisitions Available for New Programs

The Katz Library and Nottage Library serves students, faculty and staff on the Augusta and Bangor campuses as well as UMA centers and sites statewide. University of Maine System resources are also available as well as state and local public libraries. No additional resources required.

C. New Equipment Necessary for New Programs and Plan for its Acquisition and Implementation.

The equipment acquired in the PIF award, specifically in the area of large scale data storage are being acquired this spring 2019 semester, and once implemented will be a UMS resource available to all institutions. Many of the fundamental industry identified components (e.g. R and Python) are open source and are currently being used by UMA and UMF faculty. Courses will not require additional equipment in the immediate future, but data storage demands by the system in all disciplines will only continue to increase.

D. Additional Space Requirements

UMA and UMF have adequate facilities for any face-to-face course offerings. UMA will offer this Bachelor of Science in Data Science online. UMA has been investing in curriculum development in the form of course development to both keep the CIS curriculum up to date, but also to prepare to support this new degree. Existing courses in the proposed degree, and courses recently developed in support of both CIS and Data Science, are available online or at a distance.

E. Extent of Cooperation with other Programs, Both on the Initiating Campus and Other Campuses.

The Advanced Computing Group has an NSF-funded Cyberinfrastructure Engineer position that is filled by Larry Whitsel who has a PhD in Computer Science. The role of the Cyberinfrastructure Engineer is to assist faculty and students with using advanced computing resources. After the proposed storage system is commissioned and deployed, the ACG will provide no-cost training sessions on the effective use of the storage system. The training sessions will be a combination of in-person and at-a-distance. These training sessions will be recorded and made available for future reference, both for new users and as a refresher for existing users. The ACG assumes all responsibility for operation and maintenance of the proposed infrastructure. The ACG will also provide individual support, where appropriate, to assist with difficulties as they arise.

To properly support the Data Science effort within all institutions of the UMS, there must be infrastructure created to support this data science effort both academically and for research for both faculty and students across the UMS. The Data Science program will incorporate courses from across disciplines and across campuses to take advantage of existing assets and capacity, minimizing the need for wasteful replication and, hopefully, achieving a whole greater than the sum of its parts. The minors and certificate programs will pull mathematics, technology, and writing courses from existing offerings while technology modules will address the needs identified by students, programs, and employers.

See letters of support in Appendix C.

VI. Total Financial Consideration

A. Estimate of Anticipated Cost and Anticipated Income of the Program for Five Years.

BS in Data Science: Projected Program Enrollments, Revenue and Expenses					
	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024
Revenue					
New full-time majors/yr	6	20	20	30	30
Returning full-time majors/yr	0	4	18	30	46
Out of state / International	0	2	4	6	8
Total New Students CoHort	6	22	24	36	38
Total Students in Major	6	26	42	66	84
Total UMA Credit Hours/yr	180	786	1270	1969	2518
Total UMA Revenue (@\$233/CrHr)	\$41,940	\$183,837	\$297,355	\$460,907	\$589,583
Expenses					
New Data Science Faculty Salary w/Benefits	\$0	\$107,240	\$199,160	\$199,160	\$199,160
Part-Time Instructor w/Benefits	0	0	6,377	\$6,377	\$6,377
Academic Coordinator w/Benefits	\$5,561	\$5,561	\$5,561	\$5,561	\$5,561
Travel	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000
Equipment	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Supplies and Materials	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000
Total Expenses	\$19,561	\$126,801	\$225,098	\$225,098	\$225,098
NET UMA Revenue	\$22,379	\$57,036	\$72,257	\$235,809	\$364,485

B. Detailed Information on First-Year Costs, Including:

1. New personnel requirements (including employee benefits):

No new personnel will be required for the first year. A full-time tenure track position will be added by year 2. In year 3, we will add a fixed length position for which we will hire a faculty member with the expertise to teach machine learning.

2. First year revenue and identity of source

The first year net revenue is projected at \$22,379 from tuition and fees for full and part-time student enrollment.

3. How operational costs are to be absorbed into the current campus operating budget over a 5-year period

Annual increases in revenue will cover operational costs over a 5-year period.

4. What additional funding is required to support the program (identify the source).

The proposed system-wide Data Science program will require growing the existing ACG Ceph cluster by an additional 400 TB of usable storage in order to support the large data sets necessary for true Big Data education and research.

This will require four storage nodes at a cost of \$25,000 each.

5. Lifetime of outside or independent funding and plan for how and when program becomes part of E&G budget.

No projected outside funding is available for this program. It will become a part of UMA's E & G budget immediately.

VII. Program Evaluation.

All UMA programs are required to submit an annual report to the Vice President of Academic Affairs, outlining course offerings, enrollments, number of matriculated students, and number of graduates. All courses each semester are subject to student evaluations. In addition, at UMA all programs periodically prepare a program review which is then reviewed by external experts.

A. Post audit of an approved new program must be made after two years.

B. The results of the audit must be reported to the Vice Chancellor for Academic Affairs.



AGENDA ITEM SUMMARY

1. **NAME OF ITEM:** USM Name Change
2. **INITIATED BY:** Lisa Marchese Eames, Chair
3. **BOARD INFORMATION:** **BOARD ACTION:** X
4. **OUTCOME:** **BOARD POLICY:**
5. **BACKGROUND:**

USM President Glenn Cummings will present the findings of a market research study recommending the University of Southern Maine change its name to the University of Maine at Portland.

For the past year, the University of Southern Maine has been exploring a possible name change to the University of Maine at Portland. There are several reasons for this name change, including better alignment with the rest of the University of Maine System. The primary driving reason, however, is to attract out-of-state students, crucial to USM's and the System's continued growth, as well as to meeting Maine's workforce challenges.

In the fall of 2018, the University of Southern Maine engaged Market Decisions and Broadreach Communications to conduct a market research study to ascertain whether a name change would, in fact, generate greater interest among out-of-state students.

Conducted among several hundred prospective students, guidance counselors and the parents of prospective students from Northern New England to the New York metropolitan area, the 107 page report revealed the following key findings:

- Portland is a very popular city among both Mainers and those out-of-state.
- Out-of-state students, parents and counselors, however, do not know USM is located in Portland. This is true even in New England.
- A new name that clearly associates USM with Portland would significantly move the needle in attracting out-of-state students.
- A name change would also generate interest in other universities in the University of Maine System.

For the past six months, President Cummings has shared the market research data at over 20 forums with faculty, staff, students and alumni. He has also shared the data with several organizations that subsequently went on to endorse a name change.

8/15/19

Endorsers of a name change include the Portland Regional Chamber of Commerce, the Portland Press Herald, USM's Board of Visitors, USM's Alumni Board, the USM Foundation Board, and 16 major Maine CEO and Business leaders who view a name-change as a means for addressing its workforce challenges.

It is estimated that a name change will cost \$1.5 million in up-front hard costs; these are costs mandatory for a name change such as signage, stationary/ business cards, uniforms, ID cards, and web and logo redesign. There would also be an additional \$1 million in soft costs, such as marketing and updating collateral.

It is estimated that in the first year alone, a name-change will attract 80-100 additional out-of-state students, meaning USM could pay for the hard costs of a name change in three years.

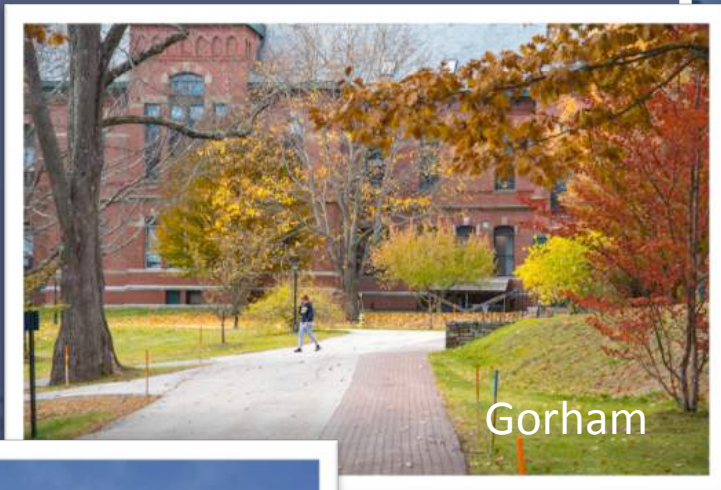
Based on the clear data and the recommendation of the market research firms, the increased revenue generated through the recruitment of out-of-state students, the positive workforce development implications for employers and our State, and clearer alignment with the University System and its One University initiative, President Cummings is requesting that the Academic and Student Affairs Committee forward this item to the September 15-16, 2019 Board of Trustees meeting for approval of the following resolution:

6. TEXT OF PROPOSED RESOLUTION:

The Academic and Student Affairs Committee of the Board of Trustees recommends that, at its meeting on September 15-16, 2019, the Board of Trustees authorize the Chancellor and President Cummings, acting through the Office of Governmental Relations, to take such actions as are necessary before the Maine Legislature's cloture date to preserve the ability to seek legislative approval in the January 2020 legislative session for a name change, while the Board of Trustees provides opportunities for appropriate USM, UMS, and public input on the action.

Name Change: Market Research Presentation

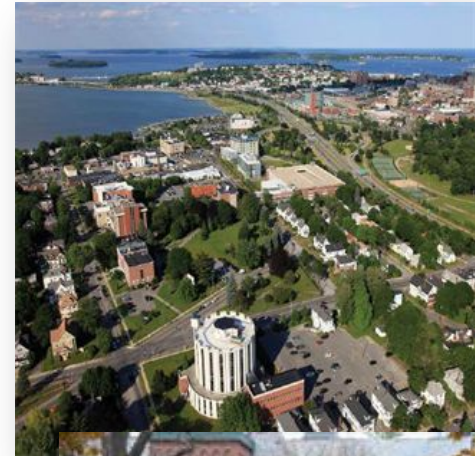
4.1



Reasons for a Name Change

- Not clear we are a public university
 - New name would align us with the University of Maine System
 - And our Law School
- Name Confusion
 - Southern Maine Community College
 - University of Southern Mississippi (usm.edu)

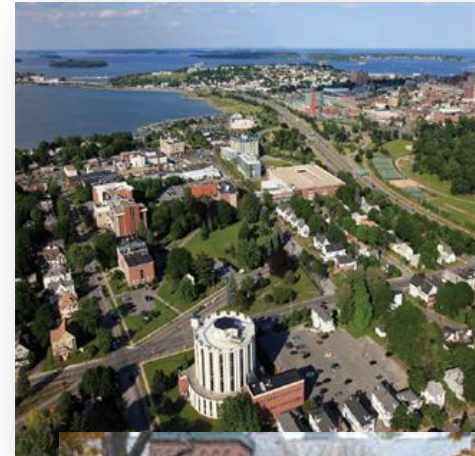
But major reason is this:



Major Reason for Name Change

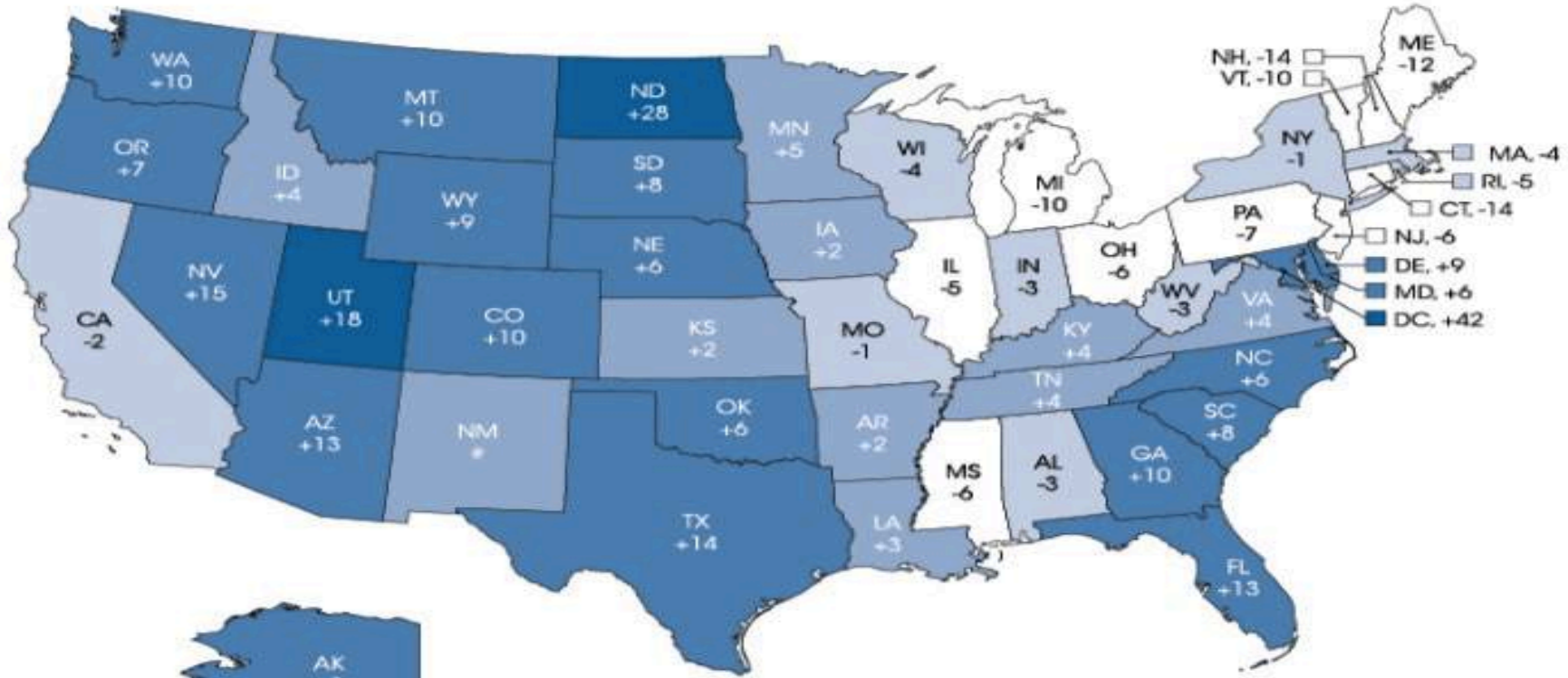
Because of alarming population trends in Maine, recruiting more out-of-state students is crucial to

- our university and
- Maine's economy and employers.



4.1

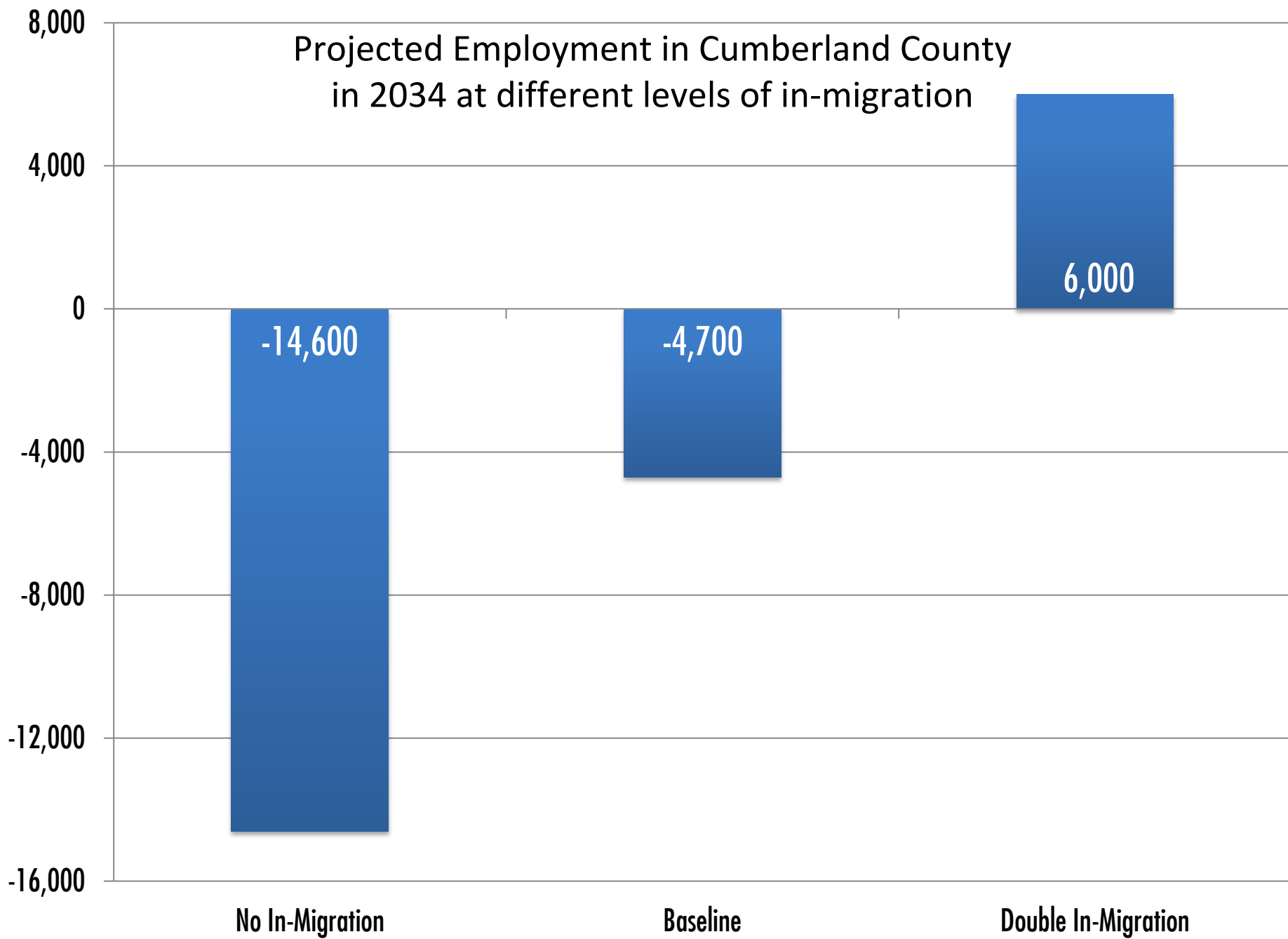
Figure 3. Projected percentage change in public elementary and secondary school enrollment, by state: Between fall 2014 and fall 2026





Maine searches for answers as deaths outnumber births

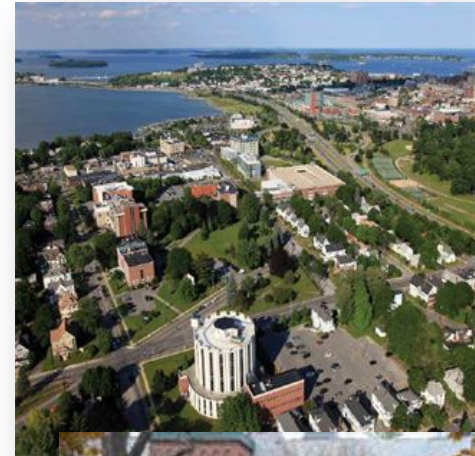
Across the state, the rapid aging of Maine's population has reached a crucial tipping point. As baby boomers head into retirement, and many young people



4.1

Out-of-State Students: An Imperative for Maine's Workforce Challenge

Bringing in more out-of-state students is essential to addressing this economic challenge, because studies show that 70% of graduates stay within 70 miles of where they attended college.



4.1

Out-of-State Students: An Imperative for USM's Future

For our university, the precipitous drop in Maine high school students translates to projected lower enrollments and less tuition dollars, which in turn, means:

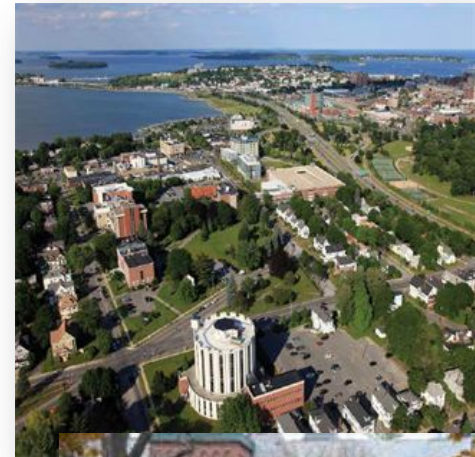
- Less money for student aid & support
- Less money for new faculty & staff
- Less money for academic programs
- Less money to provide upgrades on all three campuses.

Our way out of this impending crisis will depend on our ability to recruit out-of-state students.



Portland's Appeal to the Out-of-State Market

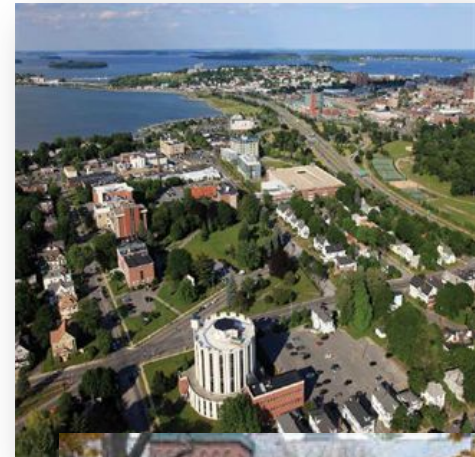
With our largest campus located in Portland — one of the most appealing and opportunity-laden small cities in America — we should be an attractive option for out-of-state students.



4.1

Portland's Appeal

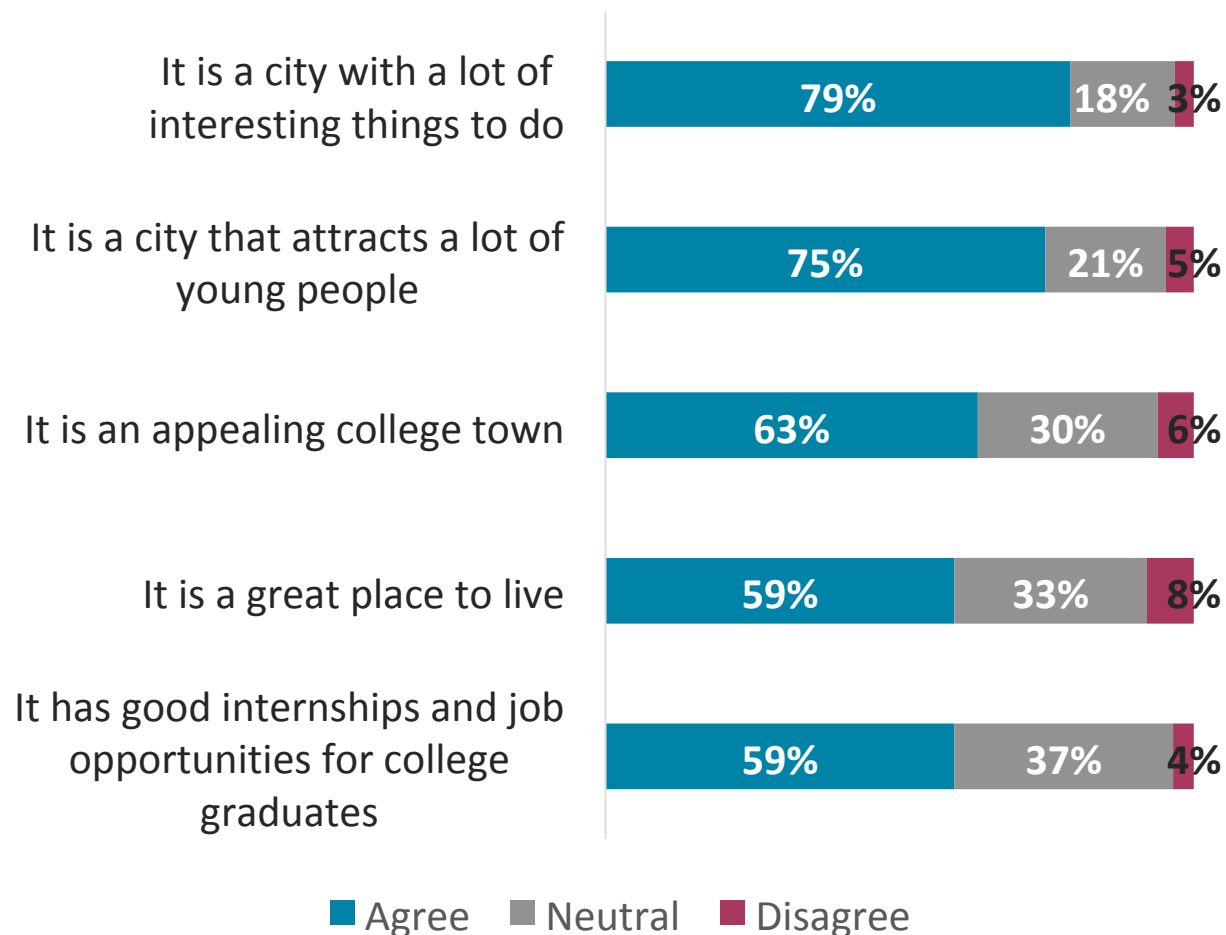
An exhaustive market research study of prospective students, parents of prospective students, and guidance counselors confirmed that Portland is an appealing city throughout New England and the New York Metropolitan area.



4.1

Positive Perceptions of Portland

How much do you agree or disagree with the following statements about Portland, Maine: (Prospective Students)

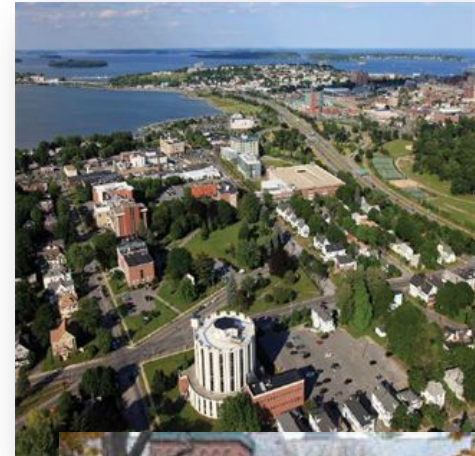


4.1

Portland is a popular city among both Mainers – who like the activity and opportunities it offers – and those out-of-state, who have a more general opinion of the city.

Out-of-Staters Know Little of USM

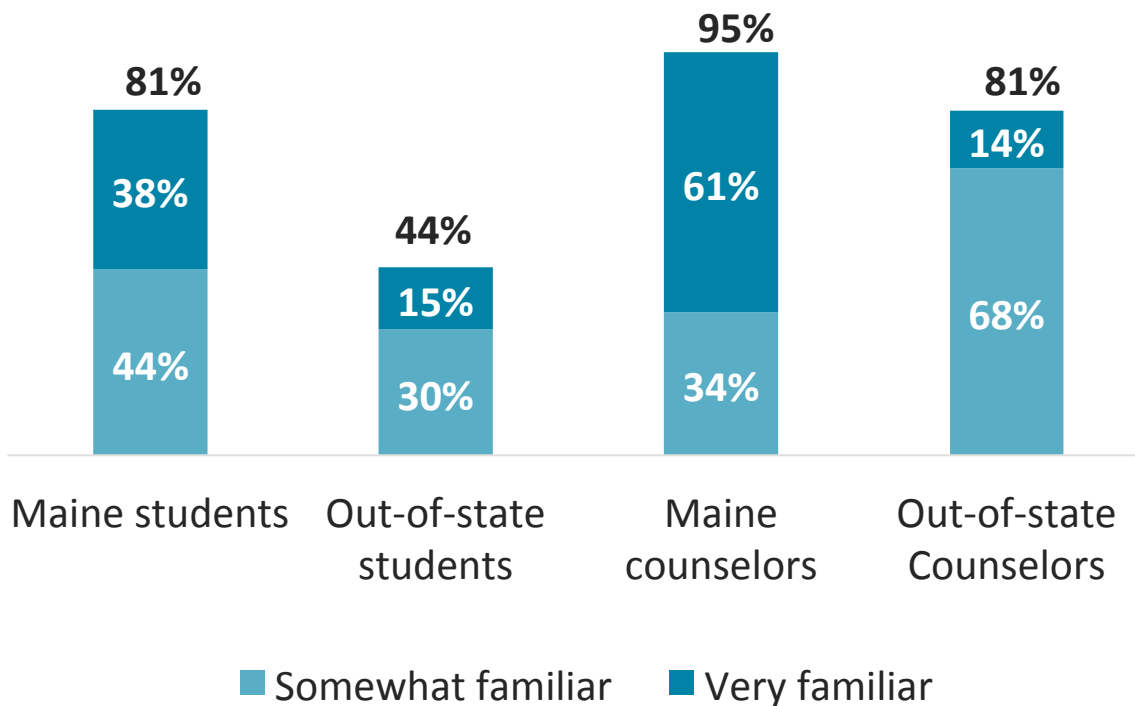
What we have found from the market research study is that out-of-state students, parents and counselors do not know who or where we are.



4.1

High In-State, Low Out-of-State Familiarity with USM

How familiar are you with the University of Southern Maine (USM)? (Prospective Students and School Counselors)

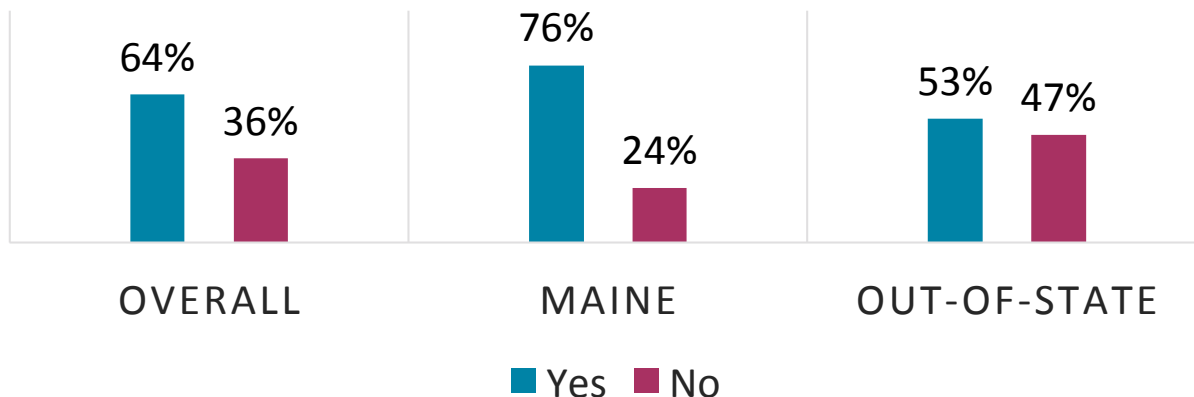


4.1

While awareness of the University of Southern Maine in Maine is high, it declines quickly outside the state of Maine.

Low Knowledge of USM's Location

**Do you know where the University of Southern Maine is located?
(Prospective Students)**



Where is that? (Prospective Students)

	Overall	Maine	Out-of-State
Portland	48%	65%	27%
Maine	23%	4%	45%
Gorham	14%	21%	5%
Southern Maine	11%	5%	18%
South Portland	6%	9%	2%
Lewiston	2%	4%	1%
Augusta	1%	2%	-
Orono	1%	2%	-
Other	6%	2%	11%

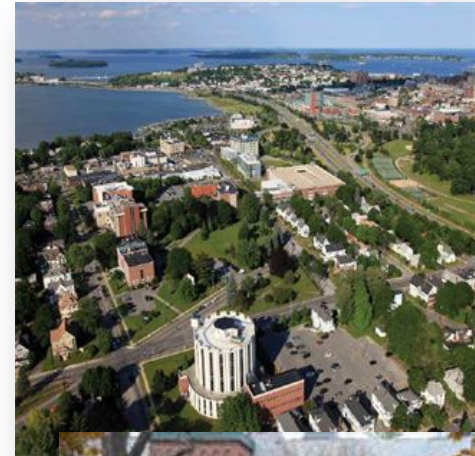


Most out-of-state students do not know where the University of Southern Maine is located (other than Maine).

High knowledge within southern Maine quickly disperses, even within northern Maine.

A Name Change Makes a Big Difference

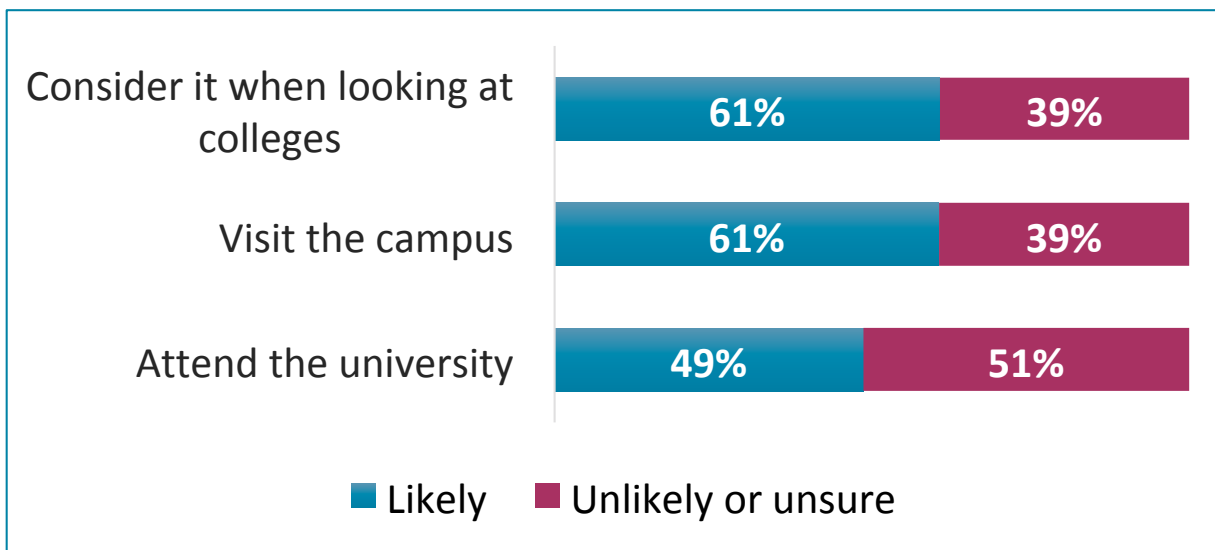
The market research showed a new name that clearly associates us with Portland could significantly move the needle in attracting out-of-state students.



4.1

Impact of Name Change on Prospective Students

Thinking about the University of Maine - Portland, how likely would you be to:

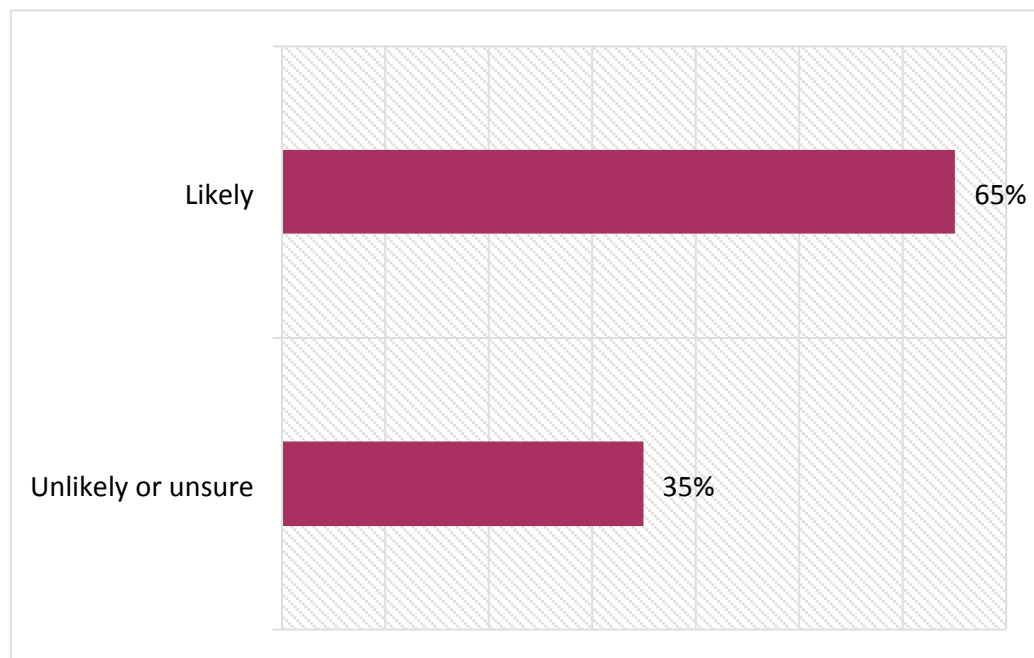


4.1

Association with Portland, both in general and with a name change, helps to drive interest in and likelihood to visit the university.

Name Change Also Helps Our Sister Campuses

If you were impressed by the University of Maine at Portland after learning more about it and/or visiting the campus, would you be more likely to consider other public universities in Maine?

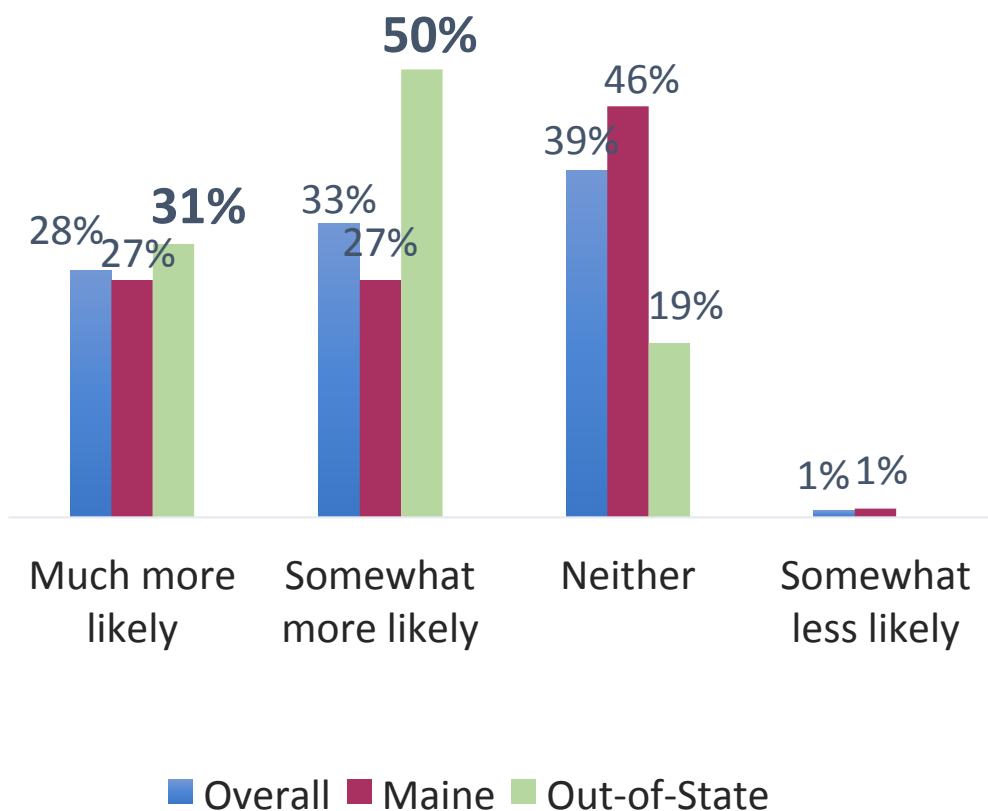


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Nearly two-thirds (65%) of prospective students said they would be likely to consider other public universities in Maine.

Likelihood of School Counselors to Recommend University of Southern Maine

Does knowing that the University of Southern Maine is in Portland make you more or less likely to recommend that students consider it when looking at colleges?



4.1

Summary

81% of out-of-state counselors said they are more likely to recommend University of Southern Maine knowing that it is in Portland compared to only 53% of in-state counselors.

Bottom Line:

Knowing that the University is located in Portland helps increase recommendations among in-state and out-of-state school counselors.

Market Research Conclusion

“According to the data, a name change would significantly increase interest in USM across all out-of-state groups. Given the large populations of these states and the difference between in and out-of-state tuition, these students represent increases in enrollment and in revenue.

Because of this, data suggests that a name change would be a sound strategic move that positions USM for long-term success.”



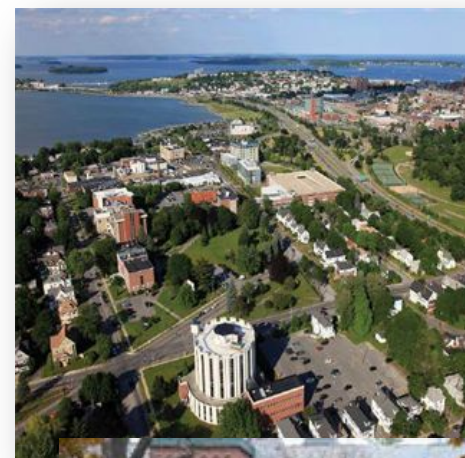
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Based on the market research study, and the recommendations of the firms who conducted the study, we are recommending we change our name to:

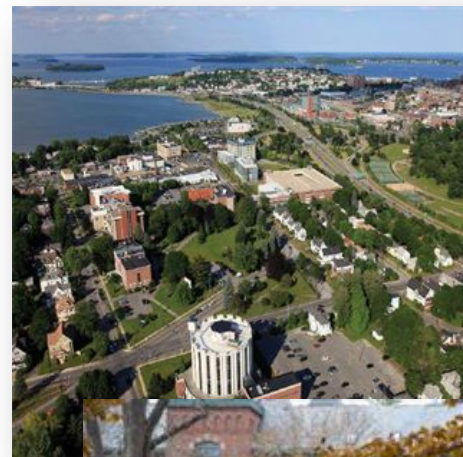
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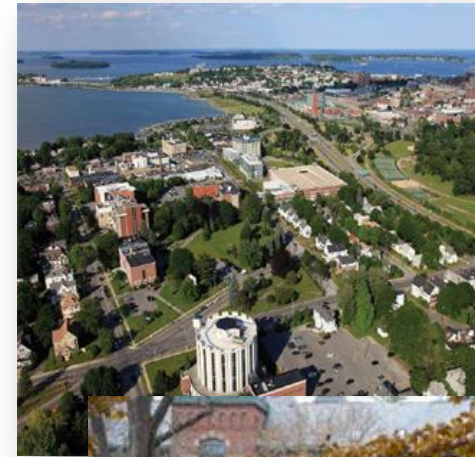
Name Change Endorsements

- Portland Regional Chamber of Commerce (unanimous vote)
- USM Alumni Board (voted 10-1)
- USM Foundation (voted 18-0)
- USM Board of Visitors (voted 19-0)
- Portland Press Herald



CEOs & Business Leaders Say Name Change Good for Economy

Michael Bourque, MEMIC
Jon Ayers, Idexx
Rich Petersen, MaineHealth
Jeff Sanders, MaineMed
Deanna Sherman, Dead River
Steve Smith, LL Bean
Michael Simonds, Unum
John Chandler, BerryDunn
Dayton Benway, Baker Newman Noyes
Chris Joyce, Texas Instruments
Bill Tracy, Auburn Savings
Bill Burke, Sea Dogs
Ellen Belknap, SMRT
Leeann Leahy, VIA
Jo-an Lantz, Geiger
Bill Williamson, Bank of America

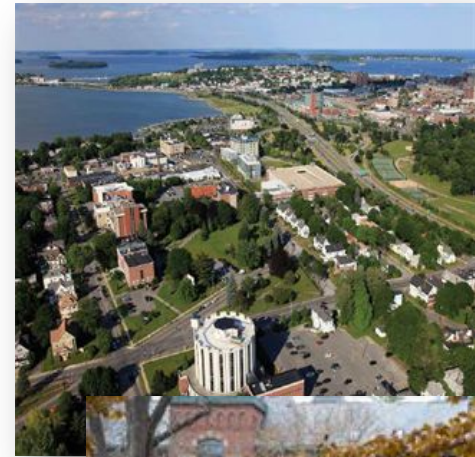


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Projection of Additional Revenue with Name Change

- With name change timed to coincide with completion of new Portland residence hall, we project a 10% increase of out-of-state students in first year.
- This translates to 80-100 new students in first year alone.
- We estimate the hard costs of a name change to be \$1.5 million, and another \$1 million in soft costs.
- New revenue from additional out-of-state students would pay for hard costs in less than 3 years.

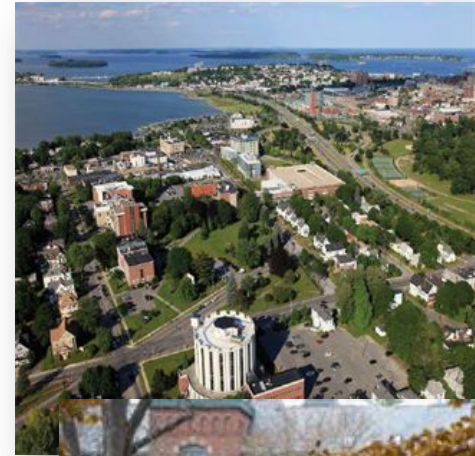


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Timeline (subject to change)

- Campus Community Dialogue
Winter – Spring 2019
- Approval of Board of Trustees
Summer/Fall 2019
- Approval of Legislature
Winter/Spring 2020
- Name Change Planning
Summer 2020 - Summer 2021/2022
- Name Change
Effective Fall 2021/2022



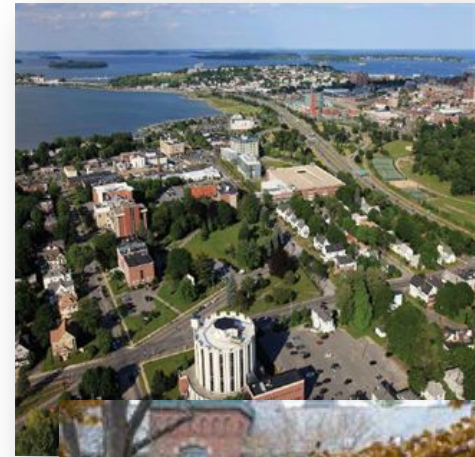
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Two Pledges

1. First and foremost, Gorham and Lewiston are part of our long-term future, and in changing our name we will ensure that prospective students and the public understand we are a three-campus university.
2. Second, we will never lose sight that we are a university whose primary mission is to support Maine, our state's citizens and their children.

We are pursuing a name change to help fulfill that mission, as well as our obligation to meet state economic needs.



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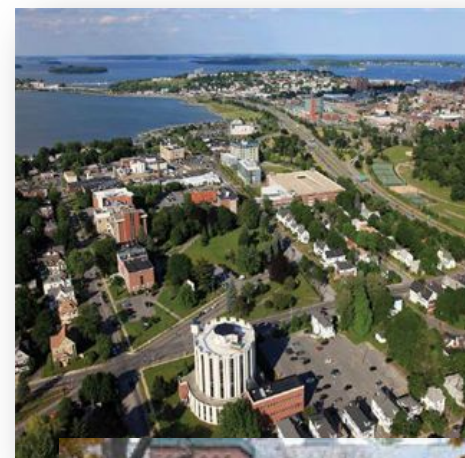
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*For more information:
usm.maine.edu/president/name-change*

Thank You!

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AGENDA ITEM SUMMARY

1. **NAME OF ITEM:** Enterprise Risk Management: Update and Discussion
2. **INITIATED BY:** Lisa Marchese Eames, Chair
3. **BOARD INFORMATION:** X **BOARD ACTION:**
4. **OUTCOME:** **BOARD POLICY:**
5. **BACKGROUND:**

Gretchen Catlin, UMS Risk Manager, will present an update to the Academic and Student Affairs (ASA) Committee regarding the implementation of Enterprise Risk Management (ERM). Previous guidance from Trustees has been reflected in the development and implementation of the ERM program. Trustees suggested that the ERM program should:

- Identify a specific Trustee committee for oversight of each identified risk;
- Rate each risk based on materiality and scope;
- Be manageable within existing resources; and
- Be actionable.

Based these suggestions, Risk Management is preliminarily tracking 15 University risks. One of those risks have been assigned to the ASA Committee for oversight. Each risk is also assigned a leader who is responsible for implementing mitigation and control strategies. Ms. Catlin will also include a brief overview of the University Risk Management Department's structure and key objectives.



Enterprise Risk Management

Academic & Student Affairs Board Committee Meeting

Gretchen Catlin, BS, CHC
System Risk Manager

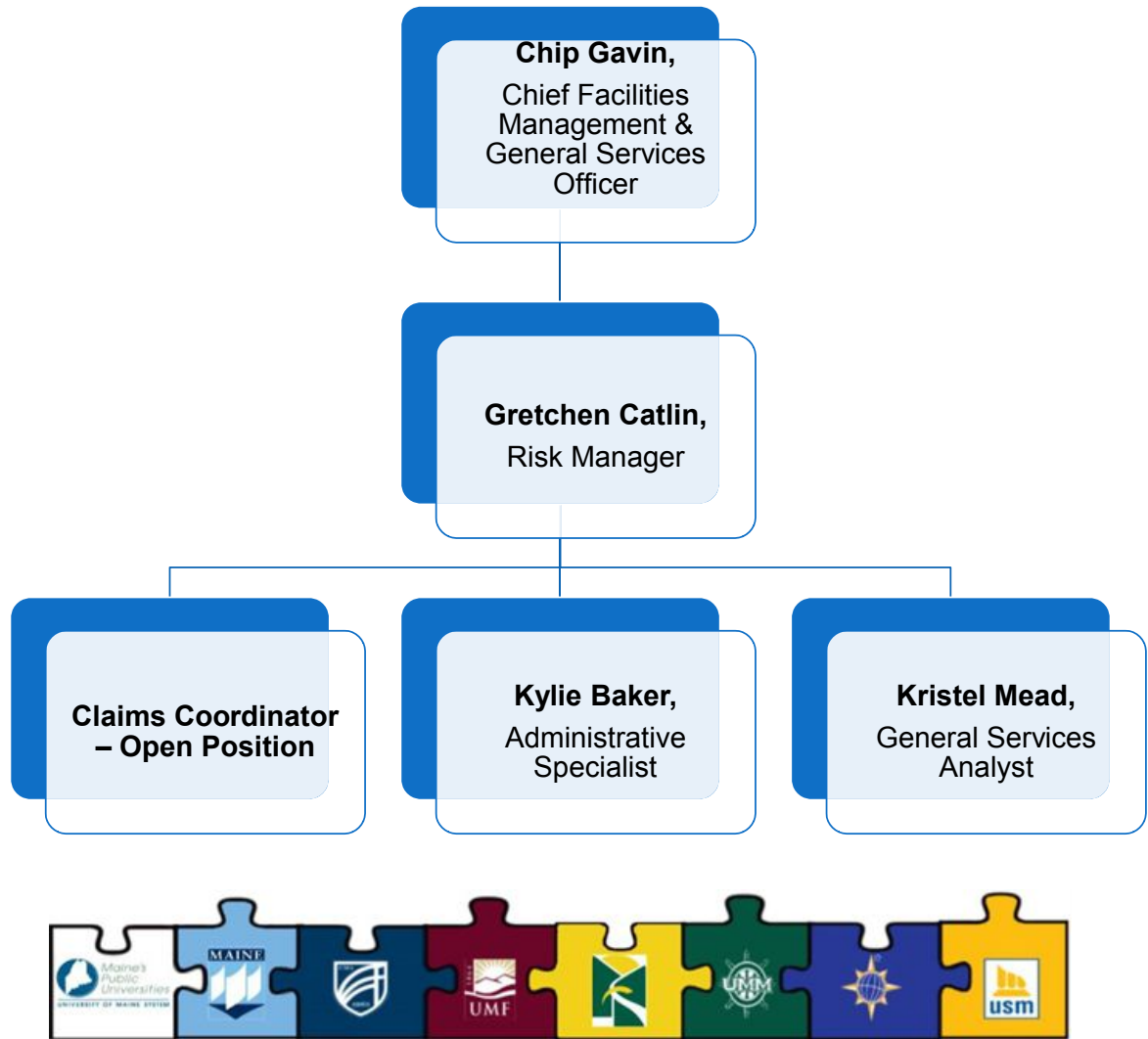
Risk Management Overview

Risk Management's key objective is preventing loss for the University and ensuring our campuses are safe for our students, employees, and guests. This is accomplished by:

- Performing enterprise level risk assessments.
- Procuring and projecting insurance needs for the University. Today Risk Management manages over 30 insurance policies ranging from auto, liability, property, workers compensation, aviation, cyber, crime and more.
- Being the administrative home for registering more than 800 vehicles, 50+ marine-craft, airplanes, and unmanned aerial and nautical vehicles used by students, faculty and staff in carrying out the University's mission.
- Providing guidance and support to the University at the daily operational level and enterprise level.



Department Structure



Executive Summary

- On May 29, 2019, Gretchen Catlin and Chip Gavin provided an Enterprise Risk Management (ERM) update to the Audit Committee. This included a review of the risk assessment tracking tool and ERM implementation schedule.
- Trustees approved the implementation approach which consists of having each enterprise risk assigned to a Board Committee for oversight.
- The University of Maine System is preliminarily monitoring 15 enterprise level risks and each has a designated Trustee committee of oversight, as suggested by Trustees.
- 1 of these risks have been designated to the Academic & Student Affairs Committee.



Measuring Risks

Risks are measured by calculating:

- 1. Materiality** – financial impact should the risk occur
 - Extreme = >\$20 million
 - High = \$5 - \$19 million
 - Medium = \$1 - \$4.99 million
 - Low = \$400 thousand - \$999 thousand
- 2. Scope** – likelihood that the risk will happen
 - Likely = 50% - 90%
 - Possible = 25% - 49%
 - Unlikely = 10% - 24%
 - Remote = 1% - 9%

Materiality X Scope = Risk Score



Risks Assigned to FFT

Risk ID	Description	Materiality	Type	Mitigation Description	Management Locus of Control	Scope	Risk Score
6	Radical or long-term enrollment change	5 (Extreme) > \$20M	Strategic	Strategic actions and tracking enrollment	Rosa Redonnett, <i>Chief Student Affairs Officer</i> Academic & Student Affairs	3 (Possible 25% - 49%)	15



Risk Control Strategies

Risk ID	Description	Control Strategies	Management Locus of Control
6	Radical or long-term enrollment change	<ul style="list-style-type: none"> Support and inform One University strategic objective Employ data analytics to identify trends & next steps 	Rosa Redonnett, <i>Chief Student Affairs Officer</i> Academic & Student Affairs



Next Steps

Committee meeting implementation schedule:

Committee	Date
Academic & Student Affairs	August 26, 2019
Finance, Facilities & Technology	August 28, 2019
Audit	October 30, 2019 – Report status
Investment	December 2, 2019
Human Resources & Labor Relations	January 6, 2020

The Audit Committee status report will include an update on control strategies discussed at each board committee.



Questions?





AGENDA ITEM SUMMARY

6

1. **NAME OF ITEM:** Review & Discussion of Academic & Student Affairs FY2020 Work Plan
2. **INITIATED BY:** Lisa Marchese Eames, Chair
3. **BOARD INFORMATION:** X **BOARD ACTION:**
4. **OUTCOME:** **BOARD POLICY:**
5. **BACKGROUND:**

Annually, a work plan for the Academic and Student Affairs Committee of the Board of Trustees is formulated. The work plan is intended to cover both action items required for governance of the University of Maine System and those topics of importance and interest to the Board. Trustee Timm will review the draft plan with the Committee in preparation for its submission at the September Board of Trustee meeting.

08/15/19

Academic and Student Affairs Committee of the Board – 2019-2020 Work Plan**

2019

Materials Due

<p>August 26 ASA 9am-12Noon <i>(for Sept BOT)</i></p>	<p>Strategic Drivers of Innovation and Academic Sustainability: Update: Academic Partnerships Update: Directed Programming (Physical Therapy) Update: Programs for Examination Update: Multi-campus Collaboration Program Proposal: BS Data Science (UMA) USM Name Change Micro Credential Development at UMS: Overview of Report and Recommendations Enterprise Risk Management: Update and Discussion Review and Discussion of ASA Work plan Faculty Representative Discussion Topic Student Representative Discussion Topic</p>	<p>8/14/19</p>
<p>September BOT (Sept. 15-16)</p>	<p>ASA Work plan 2019-2020 Program Proposal: BS Data Science (UMA) USM Name Change</p>	
<p>October 28 ASA 9am-12Noon <i>(for Nov BOT)</i></p>	<p>Fall Enrollment Report Awarding of Academic Degrees (annual) Academic Calendar: AY 21-22, AY 22-23 Update: Accreditation UMS Data Governance: Overview Enrollment Discussion Topic: UMS Career Development (Overview) Strategic Drivers of Innovation and Academic Sustainability: Update: Academic Partnerships Update: Program Innovation Fund Update: UMS Micro-Credential Initiative Faculty Representative Discussion Topic Student Representative Discussion Topic</p>	<p>10/16/19</p>
<p>November BOT (Nov. 17-18)</p>	<p>Fall Enrollment Report Awarding of Academic Degrees (consent agenda) Academic Calendar: AY 21-22, AY 22-23 (information item)</p>	

2020

Materials Due

6.1

<p>January 6 ASA 9am-12Noon <u>(for Jan BOT)</u></p>	<p>Strategic Drivers of Innovation and Academic Sustainability: Update: Academic Partnerships Update: UMS Adult Credential and Degree Completion Initiative Update: Accreditation Enrollment Discussion Topic: Marketing – UMS and Campus Student Representatives Discussion Topic Faculty Representatives Discussion Topic</p>	<p>12/18/19</p>
<p>January BOT (Jan. 26-27)</p>	<p>TBD</p>	
<p>February 24 ASA 9am-12Noon (for Mar BOT)</p>	<p>Strategic Drivers of Innovation and Academic Sustainability: Update: Academic Partnership Spring Enrollment Report Update: Accreditation UMS Academic Integrity Policy (first read) Student Representatives Discussion Topic Faculty Representatives Discussion Topic</p>	<p>2/13/2020</p>
<p>12:15-1:45pm <u>(with HR/LR)</u></p>	<p>Review and recommendations: tenure nominations (Joint with HR/LR Committee)**</p>	
<p>March BOT (March 15-16)</p>	<p>Tenure Recommendations Spring Enrollment Report</p>	
<p>April 27 ASA 9am-12Noon (for May BOT)</p>	<p>Strategic Drivers of Innovation and Academic Sustainability: Update: Academic Partnership Update: Programs for Examination Discussion Topic: Campus Student Success Initiatives Update: Accreditation UMS Academic Integrity Policy (second read) Student Representatives Discussion Topic Faculty Representatives Discussion Topic</p>	<p>4/16/20</p>
<p>May BOT (May 17-18)</p>	<p>TBD</p>	

June 22 ASA	Strategic Drivers of Innovation and Academic Sustainability:	6/11/20
9am-12Noon	Update: Accreditation	
(tent.)	Student Representatives Discussion Topic	
<u>(for July BOT)</u>	Faculty Representatives Discussion Topic	

WE WOULD LIKE TO DISCUSS A JUNE/JULY HIATUS FOR ASA DUE TO DIFFICULT SCHEDULING

July BOT	TBD
(July 20)	

**This work plan is draft and will be updated based on topics to be added by the VCAA and CSAO. Other topics will be added as needed or required for decision making. Work plan will be updated as the Faculty and Student Representatives present their individual items. Items in red are action items.

DRAFT

6.1



AGENDA ITEM SUMMARY

1. **NAME OF ITEM:** Faculty Representatives Discussion
2. **INITIATED BY:** Lisa Marchese Eames, Chair
3. **BOARD INFORMATION:** X **BOARD ACTION:**
4. **OUTCOME:** **BOARD POLICY:**
5. **BACKGROUND:**

The Faculty Representatives to the Board of Trustees would like to discuss the importance of timely and meaningful opportunities for input regarding key UMS decisions. The Faculty Representatives attending the meeting will have a brief discussion.



AGENDA ITEM SUMMARY

1. **NAME OF ITEM:** Student Representatives Discussion
2. **INITIATED BY:** Lisa Marchese Eames, Chair
3. **BOARD INFORMATION:** X **BOARD ACTION:**
4. **OUTCOME:** **BOARD POLICY:**
5. **BACKGROUND:**

The Student Representatives to the Board of Trustees would like to discuss the importance of timely and meaningful opportunities for input regarding key UMS decisions. The Student Representatives attending the meeting will have a brief discussion.



AGENDA ITEM SUMMARY

1. **NAME OF ITEM:** UM Tenure at Time of Hire Request, Professor, Mechanical Engineering
2. **INITIATED BY:** Lisa Marchese Eames, Chair
3. **BOARD INFORMATION:** **BOARD ACTION:** X
4. **OUTCOME: Relevant Academic Programming** **BOARD POLICY: 310**
5. **BACKGROUND:**

The University of Maine (UMaine) has requested immediate tenure at the rank of Professor in support of the hiring of Dr. Sharmila Mukhopadhyay as the Director of the Frontier Institute for Research in Sensor Technologies at UMaine. Dr. Mukhopadhyay also receives appointment as a tenured professor in the Department of Mechanical Engineering.

Dr. Mukhopadhyay currently holds tenure in the Department of Mechanical and Materials Science at Wright State University. She brings to UMaine 28 years of academic experience, including recognition as a Jefferson Science Fellow by the National Academies and U.S. Department of State and as a Fellow in the American Ceramic Society, during which time she has received more than \$4 million in extramural research support and authored 96 journal and conference papers.

This request is in accordance with Board of Trustee Policy and the UMS Administrative Procedures Manual for Section 310.

6. **TEXT OF PROPOSED RESOLUTION:**
That the Academic and Student Affairs Committee forwards this item to the September 15-16, 2019 Board of Trustees meeting for approval of the following resolution:

That the Board of Trustees approves tenure at the rank of Professor of Mechanical Engineering at the University of Maine to Dr. Sharmila Mukhopadhyay, effective January 1, 2020, in accordance with Board Policy 310.