Program Change Request

New Program Proposal

Date Submitted: 02/28/20 2:34 pm

Viewing: Business: Analytics

Last edit: 03/03/20 10:50 am

Changes proposed by: baclemens

Name of the school or college academic planner who you consulted with on this proposal.

<table>
<thead>
<tr>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ela Mae Matsumura - BUS</td>
</tr>
</tbody>
</table>

Proposal Abstract/Summary:

The University of Wisconsin-Madison proposes to establish a new degree: Master of Science: Business: Analytics (MSBA, shortened abbreviation and industry standard).

The development of the program responds to the increase of data availability and the desire of companies to use it as a competitive resource; resulting in dramatic increases in the number of career opportunities in business analytics. Establishing the program will provide students with a strong methodological foundation and the ability to utilize tools to generate insights from data.

Graduates will be better equipped to harness the power of analytical tools to uncover insights and provide actionable recommendations in any business setting. The program is 30 credits, offered in-person, and is a full-time, one-year program (summer, fall, and spring semesters).

Basic Information

Type of Program: Degree/Major

Upload the Approved Notice of Intent and UW System Approval Memo.

Upload completed draft of the full Board of Regents Authorization Proposal for this program.

Who is the audience?

Home Department: School of Business (BUSINESS)

School/College: School of Business

The program will be reviewed by the home department/academic unit as specified. Will an additional coordinating or oversight committee.

In Workflow

1. BUSINESS Dept. Approver
2. BUS School Admin Reviewer
3. BUS School Approver
4. APIR Admin
5. GFEC Approver
6. UAPC Approver
7. Registrar

Approval Path

1. 02/28/20 2:45 pm Dana S Outhouse (douthouse): Approved for BUSINESS Dept. Approver
2. 02/28/20 2:48 pm Brigid Clemens Patterson (baclemens): Approved for BUS School Admin Reviewer
3. 02/28/20 2:51 pm Brigid Clemens Patterson (baclemens): Approved for BUS School Approver
4. 03/03/20 10:43 am Karen E Mittelstadt (mittelstadt): Rollback to BUS School Approver for APIR Admin
5. 03/03/20 10:50 am Brigid Clemens
Describe procedures under which the coordinating/oversight committee will operate, including how the committee chair is appointed, to whom the chair reports, how participating faculty and staff are identified, provisions for transitions in the committee, and processes for interaction with the home department.

The Master of Science Business: Analytic program will use the standard UW-Madison review guidelines published at https://apir.wisc.edu/academic-planning/program-review/.

In addition, the Wisconsin School of Business will perform internal evaluations of the program 1, 3, 5 and 10 years after launch. In each of these reviews, the program will be evaluated according to the program revenues flowing to the Wisconsin School of Business, the direct and indirect costs of the program, and the educational outcomes. The result of each review stage is to either proceed with the program as is, modify the program, put the program on hold, or abandon the program. The 5th year and 10th year reviews evaluate not only current revenue and costs elements, but also future financial implications given school and industry enrollment trends. These reviews will include evaluations by the Masters Curriculum Committee and the school APC.

The degree will have its own faculty director (or co-directors) and staff director overseeing day to day management. The program will be governed by a program Academic Planning Council (APC) and the Masters Curriculum Committee (MCC). The MSBA is overseen by the Associate Dean of MBA and Masters’ programs, Enno Siemsen. Enno serves as the chair of the MCC. Enno is appointed by the dean and reports to the dean. Participating faculty and staff are identified by Enno, in collaboration with the department chairs, to identify faculty that have experience teaching in the program and are available for service work. The MCC discusses curricular and programmatic issues and makes motions to the committee of all faculty members to vote on.

Is this in the Graduate School? Yes

Award: Master of Science

SIS Code:

SIS Description:

Transcript Title: Business: Analytics

Named Options:

Will this be offered as an additional major as well? No

Is this a non-admitting master’s degree? No

Roles by Responsibilities: List one person for each role in the drop down list. Use the green + to create additional boxes.

<table>
<thead>
<tr>
<th>Role Type</th>
<th>Name (Last, First)</th>
<th>Email</th>
<th>Phone</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Contact</td>
<td>Branch, Kristin</td>
<td><a href="mailto:kjbranch@wisc.edu">kjbranch@wisc.edu</a></td>
<td>608/262-9116</td>
<td>Director</td>
</tr>
<tr>
<td>Faculty Director</td>
<td>Bauer, Daniel</td>
<td><a href="mailto:dbauer5@wisc.edu">dbauer5@wisc.edu</a></td>
<td></td>
<td>Faculty Co-Director</td>
</tr>
<tr>
<td>Faculty Director</td>
<td>Tong, Jordan</td>
<td><a href="mailto:jtong9@wisc.edu">jtong9@wisc.edu</a></td>
<td>608/265-8220</td>
<td>Faculty Co-Director</td>
</tr>
<tr>
<td>Primary Dean’s Office Contact</td>
<td>Siemsen, Enno</td>
<td><a href="mailto:esiemsen@wisc.edu">esiemsen@wisc.edu</a></td>
<td></td>
<td>Associate Dean</td>
</tr>
</tbody>
</table>

List the departments that have a vested interest in this proposal.

<table>
<thead>
<tr>
<th>Departments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economics (ECONOMICS)</td>
</tr>
</tbody>
</table>

https://next-guide.wisc.edu/courseleaf/approve/?role=GRAD SCH Dept. Approver

2/15
Computer Sciences (COMP SCI)
Information School (I SCHOOL)
Statistics (STATISTICS)
College of Letters & Science (L&S)
Electrical and Computer Engr (ELEC C EGR)

Are all program reviews in the home academic unit up to date? Yes
Are all assessment plans in the home academic unit up to date? Yes
Are all assessment reports in the home academic unit up to date? Yes
Mode of Delivery: Face-to-face (majority face-to-face courses)
Will this program be part of a consortial or collaborative arrangement with another college or university? No
Will instruction take place at a location geographically separate from UW-Madison? No
Will this program have outside accreditation? Yes
Guide Accreditation tab

Accreditation

AACSB International—The Association to Advance Collegiate Schools of Business

Will graduates of this program seek licensure or certification after graduation? No

First term of student enrollment: Summer 2021 (1216)
When will the application for the first term of enrollment open? Fall 2020 (1212)

Which terms will you allow new students to enroll? What are the application deadlines for each term selected?

<table>
<thead>
<tr>
<th>Start Term</th>
<th>Application Deadline MM/DD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer</td>
<td>04/01</td>
</tr>
</tbody>
</table>

Year of three year check-in to GFEC (3 years after first student enrollment): 2024
Year of first program review (5 years after first student enrollment): 2026

If this proposal is approved, describe the implementation plan and timeline.

In February 2019, we finalized approval of a new named option within our Masters of Science Business: Operations and Technology Management, named option Business Analytics. We ended up enrolling 24 students into the first year of that named option. We are actively recruiting the Class of 2021 but we intend to have that class be the last for the named option.

We aspire to gain the new program approval before June 2020 so we can announce and begin admissions recruiting for this new degree. The goal is to announce the program in summer 2020, open the admissions application in September 2020 and have the first students matriculate in the summer 2021 term.

After the named option does not have students in it, we will start the process of closing the Operations and Information Management department named option.

Rationale and Justifications

Why is the program being proposed? What is its purpose?
On 10/2/2018, the University of Wisconsin—Madison announced its intention to expand its computing efforts with a new synergistic project across Computer Sciences, Statistics, and the iSchool to "bring computing and key related disciplines closer together to encourage collaboration and expand teaching and research activities." "It is critical that UW stay at the forefront of research and education in computing, information and data science," said Chancellor Blank (https://news.wisc.edu/report-uw-madison-should-expand-computing-efforts/). With this MSBA, the Wisconsin School of Business can complement, contribute to, and leverage this broader UW-Madison initiative. For instance, we envision students from these other programs will take advantage of the business applications classes offered under the umbrella of the MSBA. And, vice-versa, our own students will have the possibility of deepening and broadening their modeling and computational skills by accessing classes in these other programs.

The MSBA provides an opportunity for many of our undergraduate students to stay in Madison and achieve a masters degree. Students studying business may want to expand their knowledge in business analytics and tap corresponding career opportunities. Students majoring in statistics, economics, computer science, and many other quantitative non-business fields may find this MSBA a way to link their undergraduate studies to business in order to expand their career possibilities. Additionally, students from other institutions across the state of Wisconsin, the US, and even the globe will be drawn to UW-Madison’s business application focused MSBA.

What is its relation to the institution’s mission? (Consider the mission broadly as a major research university with missions in teaching, research, service, and the Wisconsin Idea.) How does it contribute to the mission of the sponsoring unit(s)?

As we elaborate below, many universities—and particularly some of our peer institutions—offer Business Analytics programs. Given the university’s “distinctive scale and breadth” (Chancellor Blank, https://www.wisc.edu/about/), offering a popular and sought-after degree immediately aligns with its mission.

The MSBA is directly aligned with the Wisconsin School of Business Strategic Initiative goal of new and expanded Masters programs.

The University of Wisconsin-Madison further states its goal of building innovative professional master-level degrees and other lifelong learning experiences in its Strategic Plan. We foresee extending the Wisconsin Idea as our curriculum emphasizes applied learning and includes consulting projects with businesses in Wisconsin and beyond.

Within the Wisconsin School of Business, support for the MSBA program has been expressed by the Department of Operations and Information Management, the Department of Marketing, the Department of Risk and Insurance, the Wisconsin School of Business Academic Leadership Council, and the Wisconsin School of Business Dean.

Do current students need or want the program? Provide evidence.

The Wisconsin School of Business conducted a survey taken by 2448 current UW-Madison students to review and indicate interest in the various Masters offerings in development consideration. A Masters in Business Analytics was the top-ranked interest of the Master programs offered with 73% of students expressing some level of interest. When asked about their interest level in enrolling in a Masters program immediately after undergraduate studies (our main target), 40 students in their senior year stated extremely or very interested with 81 students in their senior year in total expressing some level of interest in pursuing UW's Masters in Business Analytics immediately upon undergraduate graduation. The interest numbers increase with the junior, sophomore, or freshman students. In the survey the most common majors expressing interest in this MSBA include Business BBA students (Finance, Accounting, Marketing, Actuarial Science, Information Systems, and Management – in that order).

What is the market, workforce, and industry need for this program? Provide evidence.

Many universities currently offer a Master of Science in Business Analytics program as noted in this article (https://poetsandquants.com/2016/01/18/business-analytics-masters-at-the-top-100-b-schools/). The AACSB is now reporting 106 business schools which are offering masters programs in business analytics or data analytics. Another Poet & Quants article (https://poetsandquants.com/2016/01/18/specialized-masters-programs-top-100-b-schools/) notes that, "Business analytics programs have also become a popular offering, as
The following is a list of career path options from recent job postings:

- Business analyst/specialist (Deloitte, McKinsey, etc.)
- Tableau Business Analyst / Tableau Visualization Analyst (Cigna)
- Senior Business Intelligence Analyst (Spectrum Health)
- Business Analytics Manager (3M)
- Statistician – Business Analytics (Lilly)
- Analyst, Marketing & Business Analytics (Macy’s)
- Business Analyst, Digital (ESPN)
- Business Analytics Specialist (Microsoft)
- Business Analyst/Operation Analyst/Data Analytics – Retail (Technology firm in CA)

Starting average salaries for graduates with a Masters in Business Analytics from peer institutions are commonly above $80,000/year (e.g., see https://www.usnews.com/education/best-graduate-schools/top-business-schools/articles/2017-02-06/consider-masters-programs-in-business-analytics).

How does the program represent emerging knowledge, or new directions in professions and disciplines?

Data is expanding at exponential rates. Businesses now recognize that they must leverage data and analytics methods to achieve competitive advantage. At the same time, most companies report that their employees lack the skills and technology needed to make the best use of the data they collect; and there is a significant shortage of managers and analysts who can effectively use analytical methods and tools to make business decisions.

Business Analytics and the professionals who work in this space are often translating the business need to the more technically savvy Data Scientist as well as translating it back to business managers. The Business Analyst is complementary to the Data Scientist as they often work together. While the MSBA will address emerging knowledge areas (e.g., Artificial Intelligence, Machine Learning and other current topics in the space) it will do so from the business perspective. In this way, it meets the new business need for professionals who can help transform the organization to make better data-based decisions.

In what ways will the program prepare students through diverse elements in the curriculum for an integrated and multicultural society (may include diversity issues in the curriculum or other approaches)?

The MSBA program will promote diversity in the following ways:
- We plan to allocate $30,000 of merit scholarship to support candidates who also increase the diversity of our community and program in efforts to increase their chances of choosing to study Business Analytics at UW-Madison.
- The MSBA program will draw students from different units of UW-Madison, from other UW campuses, and from outside the UW System. This heterogeneous population will ensure that multiple perspectives are brought to bear in the classroom.
- The MSBA program will strive to mirror the diversity of business analytics across industries and business functions and represent that through guest speakers and other industry involvement.

What gap in the program array is it intended to fill?

This new program is intended to fill a gap between undergraduate business programs (BBA) and a full-time Masters in Business Administration (MBA) which typically sees an average of five years of work experience prior to starting the degree.

There is a huge growth in demand for specialized Masters business programs nationwide and globally and this program represents the Wisconsin School of Business’s participation in that growing market.

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Faculty and Staff Resources

List the core program faculty and staff with title and departmental affiliation(s) who are primarily involved and will participate in the delivery and oversight.

https://next-guide.wisc.edu/courseleaf/approve/?role=GRAD SCH Dept Approver
What resources are available to support faculty, staff, labs, equipment, etc.? 
We will be able to use all current Grainger Hall resources - classrooms, library, analytics lab, etc. to fully execute the Master of Science Business: Analytics. This program is designed for cohorts of 55. We do foresee growing to two cohorts in 2023 and additional teaching resources will be needed at that time. Grainger's library, computer labs, etc. are sufficient for one or two cohorts. These expenses have been listed in our budget plan.

Program advisor(s) with title and departmental affiliation(s).

<table>
<thead>
<tr>
<th>Name (Last, First)</th>
<th>Department</th>
<th>Title</th>
</tr>
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<tbody>
<tr>
<td>Siemsen, Enno</td>
<td>Operations &amp; Information Mgmt (O I M)</td>
<td>Professor &amp; Associate Dean</td>
</tr>
</tbody>
</table>

Describe how student services and advising will be supported.

The faculty co-directors and the staff director will be the primary responsible members of the Master of Science: Business: Analytics. This team will lead curriculum development, academic guidance, and course planning. This team will also be responsible for student professional development, for which they will partner with others in the Wisconsin School of Business and employer relations.

The Masters in Business Administration and Master's Program Office (MBA and Masters PO) will work closely to support the Master of Science Business: Analytics students. The MBA PO team will lead admissions, recruitment, admissions operations, financial aid and merit aid processing, academic guidance, policies and procedures, student services-general, career and leadership development, employer relations, data reporting and rankings management.

Programmatic services, including connections to web and Guide information and the Registrar's Office will be the responsibility of WSB Academic Affairs, in alignment with the work they currently perform related to existing WSB programs.

Communication with the WSB Dean's Office will be the responsibility of the Director of Business Analytics or the Business Analytics Faculty Director(s).

Professional development opportunities will be primarily provided through Applied Learning events and additional extracurricular programming offered through the Programs Office.

Confirm that the program advisor(s) or coordinator(s) have been consulted and reviewed this proposal.

Select the Graduate Research Scholars Community for this program.

Business Graduate Research Scholars

Resources, Budget, and Finance

Is this a revenue program? Yes
What is the tuition structure for this program?
Market-based tuition - separate proposal to be submitted

Select a tuition increment:

$1,500/credit

What is the rationale for selecting this tuition increment?

We analyzed competitor institutions on their tuition rates for their MSBA programs as well as $1500/credit is most similar to our current out of state graduate business tuition so it is reasonable.

Upload the proposal for market based tuition:

Market Based Tuition
Form - MSBA
Final.pdf

Provide a summary business plan.

This new degree will be the permanent home of the named option within the Operations & Information Management department we launched in spring of 2019. The current named option is actively being marketed and operated with 24 students in its inaugural class. The curriculum has been developed and the marketing plan is in action. The introduction of this new 131 program will require updates to the content that reflect the new market-based tuition and summer-term matriculation, but otherwise it is already up and running.

Provide an overview of plans for funding the program including but not limited to program administration, instructional/curricular delivery, technology needs and program assessment.

There are two main areas of funding to support this program.
1. Tuition - as a 131 program, we are looking forward to the fiscal transparency of the MSBA tuition dollars into the business school to support the MSBA program and the broader business school.
2. Analytics Consulting Practicum revenue - this program has a capstone class called the 'Analytics Consulting Practicum'. Companies can sponsor the class (currently $14,500 per sponsor) and then have a team of students work on a real analytics project. This provides both a substantial learning experience for the students as well as substantial revenue to support the program.

It should be noted, however, the program’s tuition revenue covers all expenses and the Practicum revenue just provides additional revenue.

What is the marketing plan?

There is a robust marketing plan broadly around the Wisconsin School of Business’s graduate programs. There is a campaign to support WSB holistically as well as the individual programs - the various MBA programs as well as the specific Masters’ programs. The MSBA contributes part of its annual operation budget to support additional program specific marketing that includes digital advertisements, social media organic content, and a robust website including videos. Additionally, the Admissions and Recruitment team has webinars, live chats and 1:1 interactions to foster interest into actual applications and admissions offers into acceptances.

Describe resource and fiscal considerations - A. Provide an overview of plans for funding the program including program administration, instructional/curricular delivery, academic and career advising, technology needs, marketing (if relevant), financial aid and scholarships (if relevant), capacity for student learning outcomes assessment and program review.

This Master of Science: Business: Analytics program will be a 131 program for the School of Business (WSB).
Combined with donor funds designated for this program, the Business School dean’s office is able to authorize support for all administration, instructional/curricular delivery, academic and career advising, technology needs, marketing, financial aid, and scholarships - through money generated in tuition and donations. The broader Wisconsin School of Business administrative infrastructure will support the learning outcome assessment and program review.

Describe resource and fiscal considerations - B. Are the faculty, instructional staff and key personnel existing or new faculty and staff? If they already serve existing programs, how are they able to add this workload? If new faculty and staff will be added, how will they be funded?

The initial students coming into the Master of Science: Business: Analytics will be supported by existing faculty and staff. However, if we surpass 55 students, additional resources will be needed. We are in the process of hiring a faculty associate to teach in the MSBA program as well as sourcing industry partnerships for projects and guest speakers. Additional lecturers or faculty will also need to be hired to teach the additional class sections needed if we surpass 55 students enrolled.

Describe resource and fiscal considerations - C. What impacts will the program have on staffing needs beyond the immediate program? How are those needs being met?

Additional staff support staff may be needed, specifically in the MBA Program Office (admissions, career services, student services). We hired one Student Services Coordinator in fall 2019 to work with this as well as other Masters programs.
Describe resource and fiscal considerations - D. For graduate programs, describe plans for funding students including but not limited to funding sources and how funding decisions will be made.

We will allocate up to $50,000 of scholarship support, $30,000 of which will go to support candidates to increase the diversity of our community and campus. Scholarship will be allocated based on merit, diversity considerations as well as competitive offers from other universities.

UW System Administration and the Board of Regents require submission of budget information in a specific format. These forms will be completed in collaboration with APIR after school/college approval and before submission to UWSA for Board consideration. These forms are uploaded here by APIR.

Does the program or change require substantial new resources other than those just described? Describe the needs. Confirm that the dean is committed to providing the resources.

We have carefully outlined the instructional staff and administrative staff needs of this program and reviewed them with the Dean. The Dean’s Office is fully in support of providing these resources.

Are new Library resources needed to support this program?

No

Describe plans for funding students including but not limited to funding sources and how funding decisions are made.

Funding decisions will be allocated based on merit, diversity considerations, and competitive offers from other universities. Diversity awards will be prioritized to support the diversity of our community and campus.

Curriculum and Requirements

Guide Admissions/How to Get In tab

The following will be required for admission to the Master of Science: Business: Analytics program:

Undergraduate degree. Common majors interested in this program include business, computer science, economics, engineering, mathematics, statistics, or other quantitative fields. Any undergraduate university degree is acceptable. Expected completion of an undergraduate degree is required prior to starting the Master of Science: Business: Analytics program.

GMAT or GRE score.

Resume.

One professional letter of recommendation.

Response to essay(s) question.

Interview (by invitation only).

TOEFL or IELTS test score, only for applications whose native language is not English.

The TOEFL is waived for students who have completed a four-year undergraduate degree and/or master degree (minimum of eight semesters total) with instruction in English or who will complete such a degree prior to matriculation in the Master of Science: Business: Analytics program.

All undergraduate and masters degree transcripts will be evaluated. Schools outside the United States may be verified by World Education Services at the individual class level.

HOW TO APPLY

Students interested in business degrees do not apply through the Graduate School application system and should instead refer to the School of Business Admissions page.

Describe plans for recruiting students to this program.

The Master of Science: Business: Analytics admissions responsibilities will fall largely under the MBA and Master’s Programs Office Admissions Team. They will adapt the Full Time MBA recruitment activities as needed for this Master of Science: Business: Analytics.

Specifically, we have a website to be a resource for all prospective students and current students.

We are developing a full marketing plan including advertising, social media, and events to recruit students from across the UW-Madison campus, as well as nationally and internationally.

What is the recruiting and admissions strategy for underrepresented students?

The Master of Science: Business: Analytics admissions responsibilities will fall largely under the MBA and Masters Programs Office Admissions Team. They will adapt the Full Time MBA recruitment activities as needed for this Master of Science: Business: Analytics. The Full Time MBA has an extensive recruiting and admissions strategy and a commitment to recruit underrepresented students.
Projected Annual Enrollment:

<table>
<thead>
<tr>
<th>Year</th>
<th>Projected Enrollment</th>
</tr>
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<tbody>
<tr>
<td>Year 1</td>
<td>50</td>
</tr>
<tr>
<td>Year 2</td>
<td>50</td>
</tr>
<tr>
<td>Year 3</td>
<td>80</td>
</tr>
<tr>
<td>Year 4</td>
<td>90</td>
</tr>
<tr>
<td>Year 5</td>
<td>100</td>
</tr>
</tbody>
</table>

Maximum enrollment that can be supported with existing instructional and student services resources: 100

Describe plans for supporting enrollments that are much higher or much lower than the anticipated enrollment.

This fall we have 24 students in the already-existing Named Option degree. That number exceeded our enrollment goal of 20 for the first year, and we achieved it without any significant marketing efforts (due to timing of approval, not for lack of desire to do marketing). For the incoming class in the current Named Option, we foresee being able to grow the program to 50 students to start in fall 2020, which is a sign of the strong demand for this program.

We will manage enrollments through the admission process. We plan to limit admissions such that our enrollments will not exceed one cohort (55 students). If applications are much higher than anticipated, we will consult the school’s leadership to determine whether we will expand our capacity (see our response to the Resource and Fiscal Considerations question) and expand to 2 cohorts in a future year - likely 2023.

Those who are not familiar with using the html editor fields may upload a document with information about the curriculum for use by those who will format and edit the content that will appear in the Guide.

Guide Requirements tab

Approved Shared Content from /shared/graduate-minimum-degree-requirements-and-satisfactory-progress/
Last Approved: Oct 25, 2018 11:29am

Minimum Graduate School Requirements

Review the Graduate School minimum academic progress and degree requirements, in addition to the program requirements listed below.

**MODE OF INSTRUCTION**

<table>
<thead>
<tr>
<th>Mode of Instruction</th>
<th>Face to Face</th>
<th>Evening/Weekend</th>
<th>Online</th>
<th>Hybrid</th>
<th>Accelerated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
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</tbody>
</table>

Mode of Instruction Definitions

Approved Shared Content from /shared/graduate-school-mode-instruction-definitions/
Last Approved: Oct 25, 2018 11:30am

**Evening/Weekend:** These programs are offered in an evening and/or weekend format to accommodate working schedules. Enjoy the advantages of on-campus courses and personal connections, while keeping your day job. For more information about the meeting schedule of a specific program, contact the program.

**Online:** These programs are offered primarily online. Many available online programs can be completed almost entirely online with all online programs offering at least 50 percent or more of the program work online. Some online programs have an on-campus component that is often designed to accommodate working schedules. Take advantage of the convenience of online learning while participating in a rich, interactive learning environment. For more information about the online nature of a specific program, contact the program.

**Hybrid:** These programs have innovative curricula that combine on-campus and online formats. Most hybrid programs are completed on-campus with a partial or completely online semester. For more information about the hybrid schedule of a specific program, contact the program.

**Accelerated:** These on-campus programs are offered in an accelerated format that allows you to complete your program in a condensed time-frame. Enjoy the advantages of on-campus courses with minimal disruption to your career. For more information about the accelerated nature of a specific program, contact the program.
CURRICULAR REQUIREMENTS

University General Education Requirements

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Credit Requirement</td>
<td>30 credits</td>
</tr>
<tr>
<td>Minimum Residence Credit</td>
<td>16 credits</td>
</tr>
<tr>
<td>Minimum Graduate Coursework Requirement</td>
<td>Half of degree coursework (15 credits out of 30 total credits) must be completed graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide [<a href="https://Registrar.wisc.edu/course-guide/">https://Registrar.wisc.edu/course-guide/</a>].</td>
</tr>
<tr>
<td>Overall Graduate GPA Requirement</td>
<td>3.00 GPA required.</td>
</tr>
<tr>
<td>Other Grade Requirements</td>
<td>The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.</td>
</tr>
<tr>
<td>Assessments and Examinations</td>
<td>No formal examination is required.</td>
</tr>
<tr>
<td>Language Requirements</td>
<td>No language requirement.</td>
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Required Courses

21 core courses, in addition to 9 credits of electives, are required for the Business: Analytics MS.

Course List

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEN BUS 705</td>
<td>Statistics and Programming for Business Analytics</td>
<td>3</td>
</tr>
<tr>
<td>GEN BUS 656</td>
<td>Machine Learning for Business Analytics</td>
<td>3</td>
</tr>
<tr>
<td>GEN BUS 720</td>
<td>Data Visualization for Business Analytics</td>
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</tr>
<tr>
<td>GEN BUS 730</td>
<td>Prescriptive Modeling and Optimization for Business Analytics</td>
<td>2</td>
</tr>
<tr>
<td>GEN BUS 740</td>
<td>Experiments and Causal Methods for Business Insights</td>
<td>2</td>
</tr>
<tr>
<td>GEN BUS 760</td>
<td>Data Technology for Business Analytics</td>
<td>3</td>
</tr>
<tr>
<td>GEN BUS 770</td>
<td>Analytics Consulting Practicum</td>
<td>4</td>
</tr>
<tr>
<td>GEN BUS 840</td>
<td>Current Topics in Business Analytics</td>
<td>2</td>
</tr>
<tr>
<td>OTM 752</td>
<td>Project Management</td>
<td>1</td>
</tr>
</tbody>
</table>

Electives:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACT SCI 655</td>
<td>Health Analytics</td>
</tr>
<tr>
<td>FINANCE 635</td>
<td>Security Analysis</td>
</tr>
<tr>
<td>MARKETING 710</td>
<td>Marketing Research</td>
</tr>
<tr>
<td>MARKETING/OTM 727</td>
<td>Enterprise Systems and Supply Chain Management</td>
</tr>
<tr>
<td>MARKETING 815</td>
<td>Marketing Analytics</td>
</tr>
<tr>
<td>M H R 610</td>
<td>Compensation: Theory and Administration</td>
</tr>
<tr>
<td>M H R 617</td>
<td>Diversity in Organizations</td>
</tr>
<tr>
<td>M H R 723</td>
<td>Business Strategy</td>
</tr>
<tr>
<td>OTM 714</td>
<td>Supply Chain Analytics</td>
</tr>
<tr>
<td>REAL EST 710</td>
<td>Real Estate Finance</td>
</tr>
<tr>
<td>REAL EST 715</td>
<td>Techniques of Real Estate Valuation</td>
</tr>
<tr>
<td>R M 1660</td>
<td>Risk Analytics and Behavioral Science</td>
</tr>
<tr>
<td>R M 1655</td>
<td>Risk Financing Techniques</td>
</tr>
</tbody>
</table>

Total Credits: 30

In addition to the Approved Electives, students may request alternative business school elective courses based on their interests. These requests will need to be approved by the MSBA academic leadership team.

Total credits required: 30

Guide Graduate Policies tab

Approved Shared Content from /shared/graduate-school-policies/

Last Approved: Oct 25, 2018 11:30am

Graduate School Policies

The Graduate School's Academic Policies and Procedures provide essential information regarding general university policies. Program authority to set degree policies
beyond the minimum required by the Graduate School lies with the degree program faculty. Policies set by the academic degree program can be found below.

Major-Specific Policies

Graduate Program Handbook

A Graduate Program Handbook containing all of the program’s policies and requirements is forthcoming from the program.

Prior Coursework

Graduate Work from Other Institutions

No credits from other graduate work are allowed to count toward the degree.

UW–Madison Undergraduate

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

UW–Madison University Special

With program approval and payment of the difference in tuition (between special and graduate tuition), students are allowed to count no more than 9 credits of coursework numbered 700 or above taken as a UW–Madison University Special student. Coursework earned five or more years prior to the master’s degree is not allowed to satisfy requirements.

Probation

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

CREDITS PER TERM ALLOWED

15 credits

Time Constraints

Master’s degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

Other

Students must be enrolled full-time.

Students are not permitted from working as Project Assistants, Teaching Assistants or Research Assistants during their time in the Masters of Science: Business Analytics as they will be too busy with course work to accommodate those work time commitments.

Discuss expected progress to degree and time to degree. For undergraduate programs discuss considerations for supporting students to complete the degree in four academic years.

The program is designed to be completed in one academic year (summer, fall and spring semesters). The students will take an on-line summer term class for 3 credits (Statistics and Programming Boot Camp) and a 1 credit Current Topics in Business Analytics class in August.

Students will be required to take 12 credits in the fall, and another 5 credits in the spring semester. In either fall or spring, students need to take a total of 9 credits in electives.

Students need 30 credits to complete the degree and graduate.

Program Learning Outcomes and Assessment

List the program learning outcomes.

<table>
<thead>
<tr>
<th>Outcomes – enter one learning outcome per box. Use the green + to create additional boxes.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Apply business analytic tools and methods across various business functions (marketing, finance, supply chain, etc.) and industries (health care, finance, technology, etc.)</td>
</tr>
<tr>
<td>2</td>
<td>Leverage expertise in data management software (e.g., SQL) &amp; statistical programming (e.g., R, Python) to go from data to decisions</td>
</tr>
<tr>
<td>3</td>
<td>Deliver insights and recommendations for organizations using cutting-edge descriptive, predictive, and prescriptive analytics techniques</td>
</tr>
<tr>
<td>4</td>
<td>Manage analytics projects, communicate professionally, and influence data-based changes within an organization</td>
</tr>
</tbody>
</table>
Summarize the assessment plan.

The Master of Science: Business: Analytics assessment plan reflects this separation by assessing the methodological skills linked to learning objectives 2 and 3 at the end of the fall semester in the context of core classes focused on predictive (GEN BUS 656 – Machine Learning for Business Analytics) and prescriptive (GEN BUS 730 Prescriptive Modeling & Optimization for Business Analytics) techniques. The skills with regards to business analytics applications and associated learning outcomes 1 and 4 are assessed in the Analytics Consulting Practicum (Gen Bus 770) and the Current Topics class that draws on the experiences in the diverse set of applications classes. Learning Outcomes assessment dates are reflected in the Approved Assessment Plan spreadsheet.

The Masters Curriculum Committee will oversee the program and the Learning Outcome Assessments.

Approved Assessment Plan: MSBA Learning Outcomes Assessment Plan with dates and plan.xlsx

Related Programs

Provide information in related programs offered by other UW System institutions and explain the extent to which the proposed program is distinct and how it overlaps or duplicates those programs.

Current Wisconsin School of Business programs are housed mainly in the department areas – Marketing, Finance, etc. There are two school wide degrees housed in the Wisconsin School of Business – the Executive MBA program and the Evening MBA program. There are analytical classes in the undergraduate and Full Time MBA programs, as well as a Graduate Certificate in Business Analytics. The MSBA is designed to provide a more complete and robust analytics curriculum than what is currently offered. We foresee that this Master of Science: Business: Analytics will enhance all areas of our analytical offerings. We anticipate enrollment numbers in the MSBA that will support hiring of additional faculty or lecturers. If there is capacity in the classes, they will be open to other MBA or MS students in addition to MSBA students.

The Master of Science: Business: Analytics content area somewhat overlaps with other programs offered on campus, particularly the Master of Science in Statistics with a named option in Data Science (MS-DS), the Certificate in Data Analytics for Decision Making offered by UW’s Information School, and related programs pushed forward under the school wide initiative on computing. We view these similarities as synergistic rather than providing competition. In particular, we are serving a different student population: The MS-DS requires background in linear algebra, advanced calculus, probability, and programming, whereas the MSBA will only require one semester of calculus. Our prototypical student will be aiming towards managerial positions and liaison roles in analytics (and, indeed, our survey results indicated that the largest population of interested students are BBA graduates). And while most credits in the MS-DS are spent deepening students’ skills in statistical modeling, the Master of Science Business: Analytics curriculum takes a balanced approach between descriptive, predictive, and prescriptive analytics with an emphasis on business applications. Hence, the Master of Science: Business: Analytics prepares students to tap the broad opportunities in business analytics rather than educating specialized data scientists.

Within the UW system, the only other face-to-face Master of Science: Business: Analytics degree in place is our named option that we launched last year. We will sunset that program once this new degree is approved. There are a few UW schools offering concentrations/emphases/certificates in Analytics within their MBA degrees (UW-Milwaukee, UW-Parkside, UW-Whitewater), but the level of depth as well as the prospective student populations are different. Also, there is a system-wide UW Master of Science in Data Science offered by six UW campuses and extensions, but delivery is online only and the focus is on methods rather than business applications (https://datasciencedegree.wisc.edu/data-science-program/data-science-masters/).

Commitments

Courses in the curriculum are numbered 300 or higher.

Yes

The program faculty/staff will ensure the program website, Advance Your Career materials if applicable, and other presentations are consistent with the Guide information for this program.

Yes
Credential will not be awarded retroactively to students who completed all of the requirements before the credential was approved.
Yes

Supporting Information

List name and department of those who are in support of this proposal.

<table>
<thead>
<tr>
<th>Name (Last, First)</th>
<th>Date of contact/support letter received</th>
<th>School, College, or Department</th>
<th>Comment by contact person</th>
<th>On behalf of</th>
</tr>
</thead>
<tbody>
<tr>
<td>Klein, Elaine M</td>
<td>2/13/2020</td>
<td>College of Letters &amp; Science (L&amp;S)</td>
<td>Thanks, Ella Mae – From my seat, we need not take this back to the L&amp;S APC, since their response was focused on the academic merits of the endeavor. From an L&amp;S Admin and resources perspective, as noted in the memo, an MOU may be needed should the WSB students enroll in L&amp;S courses. I think the plan articulated in the memo was that L&amp;S would monitor student enrollments and reach out to business about revenue sharing, should the need arise. That seems like that general plan would accommodate this change in plans – but since I may be wrong, I’ll trust James to weigh in on that point. Best wishes, Elaine</td>
<td>L&amp;S</td>
</tr>
<tr>
<td>Montgomery, James D</td>
<td>2/20/2020</td>
<td>College of Letters &amp; Science (L&amp;S)</td>
<td>Kristin and Ella Mae, Sorry for my slow response. I am happy to learn that the MS-Business Analytics is now being proposed as a 131 program. When I met with Ella Mae and others in the fail to discuss an MOU between L&amp;S and Business for cross-enrollments of students in revenue-generating programs, the sticking point was whether Business would continue create programs on 101, or whether new programs would be created on 131. I have been told recently by Paul Seitz and Jennifer Krippel that Business has committed to start new programs on 131 (except in very special cases such as Arts Administration). Ella Mae’s message about the MS-Business Analytics program seems to confirm that. The L&amp;S letter of support would have been more straightforward if we had come to that resolution earlier. But like Elaine, I don’t think this issue needs to go back to the L&amp;S APC, and I hope the existing letter will be adequate for GPEC. I will try to be in touch soon to restart the discussion about the MOU between L&amp;S and Business. Please let me know if you need more now. Paul and Jennifer suggested that I copy Mike Lehman on any future messages to Business about 131 programs. For his benefit, I’ve attached the existing MOU between L&amp;S and Engineering. I presume we’ll be able to agree to a very similar MOU (with the key provision of $600/credit payments when 131 students in one college take a course in the other college). For Mike’s benefit, I have also attached the MOU for the MS-Financial Economics program. Because that program will operate as a partnership between Economics and Finance with its own idiosyncratic budget model, it will be excluded from the broader MOU. I know that Ananth is currently working with Elaine and Jocelyn on UW System approval for that program. Best, James</td>
<td>L&amp;S</td>
</tr>
</tbody>
</table>
3/3/2020

Here is a link to the required,和支持 any other explanatory information about
support from other UW-Madison units.

Additional Information:

### Approvals

**Department Approval** - This proposal has been approved by the faculty at the department/academic unit level. The program faculty confirm that the unit has the capacity and resources (financial, physical, instructional, and administrative) to meet the responsibilities associated with offering the program, including offering the necessary courses, advising students, maintaining accurate information about the program in the Guide and elsewhere, conducting student learning assessment and program review, and otherwise attend to all responsibilities related to offering this program.

Enter any notes

about approval

here:

Approved by the Masters Curriculum Committee on 12/17/2019

Supported by the WSB APC on 1/21/2020

Approved by the WSB Faculty on 1/27/2020

Entered by: Dana Outhouse

Date entered: 02/28/2020

**School/College Approval** - This proposal has been approved at the school/college level and it is submitted with the Dean's support. The Dean and program faculty confirm that the unit has the capacity and resources (financial, physical, instructional, and administrative) to meet the responsibilities associated with offering the program, including offering the necessary courses, advising students, maintaining accurate information about the program in the Guide and elsewhere, conducting student learning assessment and program review, and otherwise attend to all responsibilities related to offering this program.

Enter any notes

about approval

here:

Approved by the Masters Curriculum Committee on 12/17/2019

Supported by the WSB APC on 1/21/2020

Approved by the WSB Faculty on 1/27/2020

Entered by and date:

Brigid Patterson: 02/28/2020

**GFEC Approval** - This proposal has been approved by the Graduate Faculty Executive Committee and the Dean of the Graduate School.

Enter any notes

about the approval

here:

Entered by:

Date entered:

**UAPC Approval** - This proposal has been approved by the University Academic Planning Council and the Provost.

Enter any notes

about approval

here:

Entered by:

Date entered:

### For Administrative Use

Admin Notes:

Guide URL:

Effective date:

Career:

SIS Program Code:

SIS Short Description:

Other plan codes associated with this program:

Diploma Text:
Reviewer: Regina Ann Lowery (lowney3) (03/02/20 10:44 am): Learning outcomes: Format accepted.
Regina Ann Lowery (lowney3) (03/02/20 10:45 am): Assessment plan: Accepted.
Karen E Mittelstadt (mittelstadt) (03/03/20 10:43 am): Rollback: APR Rollback: 1) In the
Approvals section, please enter detail in the School/College Approval field (refer to
https://kb.wisc.edu/lumen/85079 for suggested approval language). That is the only change
required to the proposal. Jocelyn Milner (APR) will continue to work with the program to
finalize UW System/Board of Regents documents. But with minor fix to the proposal (approval
language above), the proposal will be approved to continue its routing to GFEC and UAPC.
Thank you.
November 27, 2018

Ella Mae Matsumura  
Senior Associate Dean of Academic Programs  
Robert and Monica Beyer Professor in Accounting  
Wisconsin School of Business  
4345 Grainger Hall  
975 University Avenue  
Madison, WI 53706

Dear Professor Matsumura,

The Information School (iSchool) is pleased to support the Notice of Intent (NOI) for the new Master of Science in Business Analytics, currently under development by the Wisconsin School of Business (WSB). We believe that the new MS program will give WSB graduate students structured means to gain analytics expertise, and help them develop a credential to make them more competitive in job seeking. There is high demand for applied analytics professionals, and it is important that the UW-Madison campus offers multiple pathways for students to gain expertise in this area.

Sincerely,

Kyung-Sun Kim  
Interim Director and Professor
Memo To: Ella Mae Matsumura, Senior Associate Dean for Academic Programs

Regarding: Notice of Intent: New Master of Science in Business Analytics

Dear Ella Mae,

I have received your November 18, 2018 letter requesting EPD’s support as part of the process for the Wisconsin School of Business’ pursuit of a new Master of Science in Business Analytics. As you probably know EPD’s master’s degree programs, including our Master of Engineering: Engineering Data Analytics (MEDA), are all delivered online. The target audience for these graduate degrees is practicing professionals that intend to continue their employment while pursuing their advanced degree. I understand the proposed MSBA will be an on-campus residential program targeting students graduating with a BS as an option for a fifth-year masters. As such, these two programs are not competitive as they are focused on different disciplines and audiences. If you feel there are ways we could collaborate into the future to leverage resources or to achieve mutual strengthening of our respective programs, please do not hesitate to reach out to us.

On behalf of the Department of Engineering Professional Development, we support the development of this new Business Analytics MS program. I appreciate you reaching out with the advance notice of intent to develop this new MS program.

Regards,

Douglas T. Reindl

cc. Susan Ottmann – Director, EPD Online Degree Programs
    Jake Blanchard – Executive Associate Dean, COE
December 3, 2018

Ella Mae Matsumura  
Senior Associate Dean of Academic Programs  
*Robert and Monica Beyer Professor of Accounting*

As Chair of the Computer Sciences (CS) Department, I write to express enthusiastic support for the proposed Master of Science: Business Analytics degree. The intention of this degree, as you explained in our meeting, is to provide managers with both the management training as well as exposure to basic technological skills so that they are better able to manage and make decisions in an environment where technology is increasingly pervasive. It is great to see UW-Madison work towards creating such a degree.

Since there are currently no CS courses involved, there is no additional demand placed on the CS department at this time. That said, the CS department is planning to develop courses, especially as part of a proposed data science major, that may be of relevance as core (technology-related) courses in the proposed Business Analytics degree.

While at this time the CS department does not have the staffing for more closer interactions with the Wisconsin School of Business for this, or other curricula that require technological training, I expect that will change in the future. At that time, closer interactions may not only be warranted but also prudent, especially given the rapid change in technology and its impact on organizational structures and operations. I ask that the Wisconsin School of Business periodically evaluate the Business Analytics degree and assess potential pedagogical interactions with the computing entities on campus.

Sincerely,

Gurindar S. Sohi  
Department Chair
Vilas Research Professor
Dear Ella Mae,

On behalf of the Statistics Department, I am writing to indicate no objections to the new Master of Science in Business Analytics currently under development by the Wisconsin School of Business.

The Statistics Department launched in 2015 a Data Science Option in our Master of Science - Statistics program, which has emerged as a leading Data Science graduate program on campus. While there is some overlap in the curriculum between your new Business Analytics program and our Data Science program (e.g. programming tools including R and Python, machine learning), your new program appears to be geared toward students interested in business requiring less math background, whereas our program provides a more comprehensive and rigorous training in Data Science requiring statistical data analysis, computing skills, and domain science knowledge.

We believe that your new program will serve graduate students in Business very well. In addition, we view your new program as a useful addition to the broader Data Science initiatives at UW-Madison and anticipate mutual benefits from coordination and collaboration between our programs.

The comments above also apply to your proposed named option Business Analytics within the Master of Science - Operational and Tech Management program.

We wish you the very best in developing the Business Analytics named option and the new Master of Science in Business Analytics program.

Yours sincerely,

Jun Zhu
Professor and Chair of Statistics
University of Wisconsin - Madison
Dear Professor Matsumura,

I received your email on December 7, 2018, regarding the proposal to create a new MS-Business Analytics in the Wisconsin School of Business. The faculty in the Department of Economics conducted a high level review of the proposal. The focus of the review was to generally assess for curricular overlap between the Masters of Science in Economics – Graduate Foundations (MS-GF) and the proposed MS- Business Analytics. There is some curricular overlap between the programs, however we recognize that the MS-Business Analytics curriculum is less technical than the Economics MS-GF curriculum.

The Economics MS-GF offers three courses that cover some of the same content that is part of the proposed MS-Business Analytics. The Economics courses are

(a) Data Analytics for Economists
(b) Economics of Machine Learning
(c) Economics of Big Data.

The Economics of Machine Learning was taught fall 2018 semester. The Economics of Machine Learning content is close to the “Machine Learning for Business Analytics” and “Experiments and Causal Methods for Business Insight” courses that are part of the proposed MS-Business Analytics. One example used in the Economics of Machine Learning course is predicting sales/predicting the effect of promotions on a product's demand. Second, causal inference is a prominent topic in econometrics courses (which is a big focus of our MS-GF program) and we touch on the problem of causal inference and how machines learning tools can serve for causal inferences, possibly leveraging data generated by experiments.

The faculty consensus is that the overlap between the program coursework will be mitigated by the difference in technical training. We note that the first learning outcome is “Apply business analytic tools and methods across various business functions (marketing, finance, supply chain, etc.) and industries (health care, finance, technology, etc.).” In addition, the proposal explicitly states that the training will be at a very low tech level - more appropriate to training managers of data analytic industry divisions. These aspects of the training minimize the overlap with our data analytic programs. On behalf of the faculty in the Department of Economics, I offer our support for the proposed MS-Business Analytics degree program.

Sincerely,

Ananth Seshadri
Chairman, Department of Economics
Todd E. and Elizabeth H. Warnock Distinguished Chair
February 26, 2020

Ella Mae Matsumura  
Senior Associate Dean of Academic Programs  
Robert and Monica Beyer Professor of Accounting  
4345 Grainger Hall  
975 University Ave | Madison, WI 53706

Dear Professor Matsumura:

I am writing in response to your request for support of the proposed MS degree in Business Analytics. I understand that the new degree will be an on-campus residential 131 program targeting business students graduating with a BS degree as an option for a fifth-year master’s degree. As such, it appears that your program will not compete with any of the current or proposed engineering graduate programs for the same students. Therefore, the College of Engineering supports the new MS degree program in Business Analytics.

We look forward to working with you on undergraduate and graduate programs and finding new and creative ways to collaborate.

Thanks for bringing this to our attention. Please contact me with additional questions.

Sincerely,

David A. Noyce, Ph.D., P.E., F.ASCE, F.ITE  
Arthur F. Hawnn Professor and Executive Associate Dean
June 17, 2019

TO: Jim Henderson, Interim Provost and Vice Chancellor for Academic Affairs
    UW-Madison

FROM: Carleen Vande Zande, Associate Vice President

RE: Approval to Plan an M.S.B. in Business: Business Analytics

In an email dated May 28, 2019, your office invited all of the UW System institutions and
the Office of Academic Programs and Educational Innovation to comment on your proposal
to plan a M.S.B. in Business: Business Analytics. On June 17, 2019, your office forwarded a
compilation of the responses to our office and to the Provosts at all UW institutions. The
responses indicated there were no objections to the program.

As part of our review, we note that no UW institutions offer a similar graduate degree or
program. Because 50% or fewer of the institutions offer the proposed program, it does not
fall under the definition of “unnecessary duplication” as defined by SYS 102. I am pleased to
grant your request for approval to plan this program that will be offered via face-to-
face/distance delivery.

After you have reviewed the Request for Authorization to implement document, the Cost
and Revenue Projections spreadsheet, and the Cost and Revenue Projections narrative,
please submit them along with your Letter of Commitment to apei@uwsa.edu. Templates
are located at https://www.wisconsin.edu/program-planning/. Request for Authorization
documents need to be sent at least eight weeks in advance of the Board of Regents
meeting at which you would like the program to be considered for approval.

This approval to plan will expire three years after the date of this memo if the Board of
Regents has not authorized this program prior to that date.

Please contact Diane Treis Rusk at dtreisrusk@uwsa.edu or 608.261.1115 if you would like
assistance with the development of the authorization documents.

c: Rebecca Blank, Chancellor, UW-Madison
   Provosts and Vice Chancellors for Academic Affairs
   Jocelyn Milner, Vice Provost, UW-Madison
   UW Institution Program Planning Liaisons
   UWSA Program Planning, Review, and Array Management Team
5 February 2019

TO: Ella Mae Matsumura, Senior Associate Dean of Academic Programs, Wisconsin School of Business

FROM: John Karl Scholz, Dean

RE: Notice of Intent to Offer a New Program: MS-Business Analytics

CC: Elaine Klein, Associate Dean for Academic Planning, L&S
Marty Gustafson, Assistant Dean for Academic Affairs, Continuing Studies
Jocelyn Milner, Vice Provost and Director, Academic Planning and Institutional Research
James Montgomery, Associate Dean for Fiscal Initiatives, L&S
Joshua Morril, Assistant Dean, Graduate School
Jennifer Noyes, Associate Dean for Operations and Staff
Parmesh Ramanathan, Associate Dean, Graduate School
Eric Wilcots, Deputy Dean, L&S

Thank you for affording the College of Letters & Science an opportunity to review the Notice of Intent to plan and to offer a new academic program, the MS-Business Analytics, at UW-Madison. As you are already aware, a number of L&S units have already expressed their support for this new program and the related request, in the short term, to create a new “Business Analytics” named option under the MS-OTM – a program we understand to be slated for retirement if the new degree program is approved and implemented.

We have conferred with our colleagues (in particular, the Department of Economics, which has the strongest connections to your school) regarding any impact of your new program on their existing courses and programs. We appreciate the nuanced differences in the approaches to this topic that might be taken by Economics vs. the School of Business. At this time, I am satisfied that the program does not significantly overlap with L&S programs. In turn, I trust that the existence of this new program will not impinge upon the work in analytics that has long been part of the curricula in Economics, Statistics, and Computer Sciences.
As designed, the proposed degree program does not require students to take courses offered in the College of Letters & Science. However, the NOI envisions that L&S students will “take advantage of the business applications classes in various industries offered under the umbrella of the MSBA” and conversely that Business students “will have the possibility of deepening and broadening their modeling and computational skills by accessing classes” in L&S programs.

The NOI further indicates that the MS-Business Analytics will operate as a traditional pooled-tuition (fund 101) program. However, under the current budgetary arrangement between central campus and the School of Business, any incremental tuition revenue generated by this program will augment the 101 base budget for Business. Thus, while tuition for the new program is nominally pooled, Business will in fact capture tuition revenue for this new program in much the same manner as non-pooled (fund 131) programs in other schools and colleges.

Because non-pooled programs capture all tuition revenue for their students, there is a need for revenue-sharing agreements to defray any instructional costs incurred by other units. Within L&S, whenever students in 131 programs enroll outside the home department, we thus require the 131 program to pay the instructional department. L&S recently created a formal Memorandum of Understanding with the College of Engineering to extend this revenue-sharing agreement to cross-college enrollments. Under this MOU, Engineering pays L&S for any enrollments of Engineering 131 students in L&S courses, and conversely L&S pays Engineering for any enrollments of L&S 131 students in Engineering courses.

Recognizing that students in the new Business program are not required to take any L&S courses, we anticipate that the cross-college enrollments envisioned in the NOI will at least initially be small. Thus, L&S will not immediately request the creation of a revenue-sharing agreement with Business. However, L&S will monitor cross-college enrollments, and will contact Business to create an MOU should the need arise.

I discussed this matter with the L&S Academic Planning Council on February 5, 2019. The APC and I support the proposed MS-Business Analytics, with the understanding that L&S will monitor student enrollments and will contact Business about developing a revenue-sharing agreement should the need arise.
Notice of Intent for New Academic Degree
Masters of Science: Business Analytics

Name of Proposed Degree: Master of Science in Business Analytics

Home unit: School of Business

Mode of Delivery: Primarily face-to-face, but will also include blended options

Primary Faculty Contact:
- Daniel Bauer, Associate Professor
- Kristin Branch, Faculty Associate
- Jordan Tong, Associate Professor

Program Description
The Wisconsin School of Business is proposing a new Master of Science in Business Analytics (MSBA) program for students who want to combine strong analytical and quantitative ability with managerial excellence and application knowledge to pursue a career in business analytics.

Our intended Learning Outcomes include:
- Apply business analytic tools and methods across various business functions (marketing, finance, supply chain, etc.) and industries (health care, finance, technology, etc.)
- Deliver insights and recommendations for organizations using cutting-edge descriptive, predictive, and prescriptive analytics techniques
- Manage analytics projects, communicate professionally, and influence data-based changes within an organization
- Use software & programming languages to go from data collection to solution implementation (SQL, R, Python, Tableau, Excel)

Program Content
The masters will start with one 3-credit summer term Statistics and Programming for Business Analytics Boot Camp (starting in summer 2020) and then include the full fall and spring semesters for a total of three terms of study. The program will feature a cohort format with all students starting and ending together. The boot camp and fall semester provide a methodological foundation educating students with a balanced skillset across descriptive, predictive, and prescriptive analytical techniques that they can use to deliver insights and solutions to a breadth of business problems. The spring semester focuses on business analytics applications through hands-on experience, real-world consulting projects, and by allowing students to select courses in specific business functions/industries.
More specifically, this Master program will help students learn to:

- Apply business analytics tools and methods across various business functions and industries:
  - Marketing Analytics
  - Risk Analytics and Behavioral Science
  - Supply Chain Analytics
  - People Analytics
  - Health Analytics
- Deliver insights and recommendations for organizations using cutting-edge descriptive, predictive, and prescriptive analytics techniques:
  - Data visualization
  - Experimentation and causal analysis
  - Machine learning
  - Prescriptive modeling and decision-making
- Manage analytics projects, communicate professionally, and influence data-based changes within an organization:
  - Project and change management
  - Business analytics consulting practicum
  - Applied learning courses
- Leverage expertise in software & statistical programming to go from data collection to solution implementation (SQL, R, Python, Tableau, Excel):
  - Summer boot camp
  - Data management
  - Applied learning courses

The Master of Science in Business Analytics program will be 30 credits, offered in-person, and will start in summer 2020, with the Statistics and Programming for Business Analytics Boot Camp into Summer Term (August offering).

**Resources**

The initial planning and startup phase for the Master of Science in Business Analytics is coordinated by the Leadership Team consisting of two Associate Professors and a Faculty Associate. This will be a 101 program where tuition dollars are generated and appropriated. The Wisconsin School of Business Dean’s office will allocate funds from tuition allocation to support the teaching, student support, and advising of the Master of Science in Business Analytics, and additional head count will be added when the student and credit count supports those additions.

**Other Required Approvals**

No specialized accreditation or HLC approval is required.

**Alignment with broader UW-Madison, Direction, and Academic Programs**

On 10/3/2018, the University of Wisconsin—Madison announced its intention to expand its computing efforts with a new synergetic project across Computer Sciences, Statistics, and the iSchool to “bring computing and key related disciplines closer together to encourage collaboration and expand teaching and research activities.” “It is crucial that UW-Madison stay at the forefront of research and education in computing, information and data
science,” said Chancellor Blank. With this Master of Science in Business Analytics, the Wisconsin School of Business can complement, contribute to, and leverage this broader UW-Madison initiative. For instance, we envision students from these other programs will take advantage of the business applications classes in various industries offered under the umbrella of the Master of Science in Business Analytics. And vice-versa our own students will have the possibility of deepening and broadening their modeling and computational skills by accessing classes in these programs.

The Master of Science in Business Analytics provides an option for UW-Madison undergraduate students to stay a 5th year Master’s program and obtain a master’s degree. Students studying business may want to expand their knowledge in business analytics and tap corresponding career opportunities. Students majoring in statistics, economics, computer science, and many other quantitative non-business fields may find this Master of Science in Business Analytics a way to link their undergraduate studies to business in order to expand their career possibilities. Additionally, students from other institutions across the state of Wisconsin, the US, and even the globe will be drawn to UW-Madison’s business application focused Master of Science in Business Analytics.

The Master of Science in Business Analytics is directly aligned with the Wisconsin School of Business Strategic Initiative goal of new and expanded Masters programs. It will also support the summer enrollment goal with our Statistics and Programming boot camp.

The University of Wisconsin—Madison states its goal of building innovative professional master-level degrees and other lifelong learning experiences in its Strategic Plan. We foresee extending the Wisconsin Idea as our curriculum emphasizes applied learning and includes live consulting projects with businesses in Wisconsin and beyond.

**Need for the new program**

Comparable business schools have recently launched master degrees in business analytics with sizeable cohorts. For example, Minnesota’s 2017-2018 student cohort was 97 students, Purdue’s was 82 students, Texas’ was 53, and USC’s was 90.

The Wisconsin School of Business recently conducted a survey taken by 2448 current UW-Madison students to review and indicate interest in the various MS offerings in development consideration. The MS in Business Analytics was the top-ranked interest of the Master programs offered with 73% of students expressing some level of interest. When asked about their interest level in enrolling in a Masters program immediately after undergraduate studies (our main target) 40 students in their senior stated extremely or very interested with 81 students in total expressing some level of interest in pursuing UW’s Master of Science in Business Analytics immediately upon undergraduate graduation. The interest numbers increase with the junior, sophomore or freshman students. In the survey, the most common majors expressing interest in this Master of Science in Business Analytics include Business BBA students (Finance, Accounting, Marketing, Actuarial Science, Information Systems, and Management – in that order). No Major BS and No Major BA students are the other two top major groups.

The Master of Science in Business Analytics overlaps with other programs offered on campus, particularly the Master of Science in Statistics Option in Data Science and related programs pushed forward under the school-wide initiative mentioned above. As also outlined above, we view these similarities as synergetic rather than providing competition. In particular, we are serving a different student population: The Master of Science in Statistics Option in Data Science requires background in linear algebra, advanced calculus, probability, and
programming, whereas we simply require one semester of calculus. Thus, the prototypical student will be less technically equipped, but possibly more veering towards managerial positions and liaison roles in analytics (and, indeed, our survey results indicated that the largest population of interested students are BBA graduates). And while most credits in the Master of Science in Statistics Option in Data Science are spent deepening students’ skills in statistical modeling, the Master of Science in Business Analytics curriculum takes a balanced approach between descriptive, predictive, and prescriptive analytics with an emphasis on business applications. Hence, the MSBA prepares students to tap the broad opportunities in business analytics rather than educating specialized data scientists.

Within the UW system, there is currently no MS-Business Analytics degree offered. There are a few UW schools offering concentrations/emphases in Analytics within their MBA degrees (UW-Milwaukee, UW-Parkside, UW-Whitewater), but the level of depth as well as the prospective student populations are different. Also, there is a system-wide UW Master of Science in Data Science offered by six UW campuses and extensions, but delivery is online only and the focus is on methods rather than business applications. Hence, currently UW students need to leave the state in order to obtain this in-demand degree. As the flagship university and the leading business school in the state, WSB is in a prime position to close this gap in the UW system offering.

Many universities currently offer the Master of Science in Business Analytics program as noted in this article, including some of our direct peers (e.g., University of Minnesota or Purdue). These programs have shown substantial growth over the past years. A Poet & Quants article notes that, “Business analytics programs have also become a popular offering, as schools respond to industry’s need to exploit big data, and the subsequent demand for skilled data analysts. Twenty-seven business analytics programs are available among the top 100 schools, and that number is likely to rise quickly.”

Starting median salaries for those with an Masters in Business Analytics is approximately $80,000/year based on this article from US News.

The positive evidence from our study as well as the emergence of similar master programs at other business schools make a strong case for student and industry demand. In less than 10 years, the number of business analytics master’s programs in the US has grown from 0 to over 80 (Institute of Advanced Analytics Report 2018).

**Program Team**

The team actively developing and leading the initiative (Leadership Team): Daniel Bauer, Associate Professor, Kristin Branch, Faculty Associate and Jordan Tong, Associate Professor. Other faculty members advising the degree include: Ella Mae Matsumura, Senior Associate Dean and Full Professor, Enno Siemsen, Associate Dean and Full Professor.
MARKET-BASED TUITION PROGRAM TUITION REQUEST FORM

In keeping with UW System Administrative Policy 130 (SYS 130) on programming and tuition setting for non-traditional markets, this is a proposal for market-based tuition for the UW-Madison Master of Science: Business: Analytics (MSBA) program that is seeking approval under the entrepreneurial program model. Market-based tuition is warranted for programs that are predominately face-to-face delivered programs designed for adults and non-traditional audiences, that are designed to enhance the professional skills for post-bachelors and non-degree students, and that are responsive to local and national labor markets. All these criteria are met by the MSBA program. Moreover, our program has a clearly defined curriculum that follows a defined path and a predicable timeline for progress and completion. Market-based tuition rates are higher than standard Wisconsin resident graduate tuition at UW-Madison ($670 per credit for Wisconsin residents and $1503 for nonresidents in 2017-18).

1. Program Name: Master of Science: Business: Analytics
   Plan Code:
   Subplan Code:

2. Department/Program Contact Person/Title/Email:
Wisconsin School of Business, Risk & Insurance department / Daniel Bauer / Associate Professor and Business Analytics Co-Faculty Director / daniel.bauer@wisc.edu

   School/College Contact Person/Title/Email:
Wisconsin School of Business / Enno Siemsen / Associate Dean of the MBA and Masters Programs / esiemsen@wisc.edu

3. Request Submission Date:

4. Term for Requested Tuition to be Effective: Summer 2021

5. Requested Tuition Rate from List of Allowed Rates: $1500/credit, plus segregated fees

6. Describe the student audience, program structure, and how the program meets the criteria for market-based tuition:
The Wisconsin School of Business (WSB) is launching a new Master of Science degree in Business Analytics (MSBA) as a new degree. This is a booming area for business studies due to the expansion of data and analytics needs in business. The WSB current has a similar program as a named option in its Operations & Information Management department that started in fall of 2019. The first cohort of students in the named option started in fall 2019 and will graduate this coming May 2020. However, the intention has always been that this program is not housed in any one department within the business school but be set up as an interdisciplinary program that spans the full WSB. As such, we are introducing a new degree and are using the introduction as an impetus for launching market-based tuition. Many of our peer institutions use price-per-credit pricing as it is more straightforward and predictable for prospective students. Additionally, the $1,500 per credit prices puts Wisconsin at an average market price, with still being a strong value across the MSBA marketplace.
7. Provide a rationale that this tuition rate is appropriate, based on the market, and show how the proposed tuition is competitive with peer or competitor programs. Specifically, provide information about competitor programs and pricing (usually presented in tabular form with relevant regional competitors, Big 10 competitors, and other key national competitors), including competitor programs at other UW institutions.

The table below lists institutions with similar MSBA programs and shows the comparative total degree cost and cost per credits. Currently, the Wisconsin School of Business has a differential tuition and the current out-of-state rate equates to $1,471 per credit based on 15 credits. The proposed market-based tuition is a minor (2%) increase from that. Compared to peer institutions, the proposed market-based tuition still puts UW-Madison as competitive for out-of-state applicants. The biggest change is the rate charged to Wisconsin residents. While this group is only a small percentage of our current students (3 of the 24), we intend to offer support to make the program attractive to these prospective students. We have substantial scholarships planned in our budget and will be available to Wisconsin residents to make the program more accessible for them.

<table>
<thead>
<tr>
<th>University</th>
<th>Total Required Credits</th>
<th>Cost per Credit</th>
<th>Total Cost (not including segregated fees)</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Wisconsin – Madison</td>
<td>30 credits</td>
<td>$1,500</td>
<td>$45,000</td>
</tr>
<tr>
<td>University of Minnesota – Carlson School</td>
<td>45 credits</td>
<td>$1,450</td>
<td>$65,250</td>
</tr>
<tr>
<td>University of Maryland – Smith School of Business</td>
<td>30 credits</td>
<td>$2,056*</td>
<td>$46,980 Maryland residents, $59,850 Out of State &amp; International</td>
</tr>
<tr>
<td>Indiana University – Kelley School of Business</td>
<td>30 credits</td>
<td>$1,380</td>
<td>$41,400</td>
</tr>
<tr>
<td>University of Texas - Austin</td>
<td>36 credits</td>
<td>$1,333*</td>
<td>$43,000 Texas Resident, $48,000 Out of State &amp; International</td>
</tr>
<tr>
<td>Purdue University</td>
<td>36 credits</td>
<td>$1,350*</td>
<td>$24,300 Indiana residents, $34,200 Out of State, $48,600 International</td>
</tr>
<tr>
<td>Michigan State University – Eli Broad College of Business</td>
<td>30 credits</td>
<td>$1,300*</td>
<td>$36,000 Michigan residents, $39,000 Out of State &amp; International</td>
</tr>
<tr>
<td>University of Iowa – Tippie College of Business</td>
<td>39 credits</td>
<td>$1,296*</td>
<td>$31,372 Iowa residents, $50,580 Out of State &amp; International</td>
</tr>
<tr>
<td>Notre Dame University – Mendoza College of Business</td>
<td>31 credits</td>
<td>$1,645</td>
<td>$51,500</td>
</tr>
<tr>
<td>Emory University – Goizueta College of Business</td>
<td>31 credits</td>
<td>$2,182</td>
<td>$67,660</td>
</tr>
<tr>
<td>University of Southern California – Marshall School of Business</td>
<td>33 credits</td>
<td>$1,980</td>
<td>$65,340</td>
</tr>
</tbody>
</table>

* Used International student tuition rates

8. Provide a summary of applicant volume, enrollment trends, graduation patterns, and market demand for graduates. The AACSB is now reporting there are a 106 business schools offering a MS in Business or Data Analytics. This isn’t surprising as the prospective student demand as well as industry’s hiring demand is quite high.

For the MSBA Class of 2020 under the OTM named option degree, UW-Madison received 56 applications despite only opening admissions in February 2019. We admitted and enrolled 24 students. Three of those 24 students are

Non-Pooled Tuition Program Requirements and Process, V.06.09.2016, revised 12.08.16, 02.07.18, 05.01.19, 06.13.19
Wisconsin residents, 19 are international students – which is a reflection of the applicant pool. If possible, given the applicant pool, we are aiming for a balance of 50% domestic student and 50% international as we go forward. Across the full program, less than half of the students are seeking full-time positions at this point and three students among them have already secured full-time positions (Epic Systems, Dell, & Deloitte). Many others are looking for internships or applying to academic programs (PhD programs, additional masters level course work, e.g.). The industry demand for this type of student is quite high.

For the current year, as of 2/5/2020, we received 175 applications for the current named option in Business Analytics. We need to restrict enrollment to 55 students in the next class, due to both teaching constraints and our desire to build a solid placement record before expanding to two cohorts. With the new degree, we do anticipate growing to a class size of 100 students across two cohorts to accommodate the prospective student and industry demand in this area.

9. Provide summary information about anticipated program revenues and expenses.

We anticipate enrolling 50 students in the first year of the new program for the Class of 2022. That would equal $2,250,000 in tuition revenue less 5% in tuition waivers for veteran applicants, netting $2,137,500. Program expenses, not including teaching staff, is projected at $380,000 leaving substantial funds for teaching staff, campus share, and supporting the Wisconsin School of Business operations overall.

The budget has been planned in detail accounting for student learning experience expenses, support staff, as well as teaching time and course developments. We have $50,000 per year designated for scholarships to make this program accessible, and we especially target Wisconsin residents and underrepresented minorities as potential recipients. The scholarship budget increases to over $150,000 as the program grows, so as to make sure to increase the number of enrolled Wisconsin residents.

The result of our projections is that moving to the $1,500/credit model will allow the program to cover 100% of program expenses, add substantial revenue to the Dean’s office to support the overall Wisconsin School of Business operations, as well as provide resources to support hiring additional faculty in the analytics space. Hence, with our request, the MSBA program will raise the caliber of the Wisconsin School of Business overall through adding financial resources and enhancing the overall analytical curriculum – from which all Wisconsin School of Business students will benefit.

*Use this request form in conjunction with the UW-Madison policy on market-based tuition.*
*Submit the form to director of Academic Planning and Institutional Research ([Jocelyn.Milner@wisc.edu](mailto:Jocelyn.Milner@wisc.edu))*
*Implementation in Fall or Summer term: submit proposal Aug 9 or Nov 1 of prior year; approval must be complete by February 1.*

*Form creation date 2018 12 04; administrative revision 6 15 2019*