MBA 6003 Data Analytics for Managerial Decision Making

Workflow Curriculum Modification - Course Change

Please verify your answers to the previous questions before clicking Submit Request at the bottom of the page.

1. Proposed course prefix and number:
MBA 6003

2. Proposed credit hours:
3

3. Proposed course title:
Data Analytics for Managerial Decision Making

4. Proposed course prerequisites:
None

5. Proposed course corequisites:
None

6. Proposed course prerequisites that may be taken concurrently (before or at the same time):
None

7. Minimum grade for prerequisites (default grades are D for Undergrad and C for Grad):
None

8. Major and/or minor restrictions:
Include

9. List all the four-digit major and/or minor codes (from Banner) that are to be included or excluded:
ACTM, MBAM, MBBM, MBFM, MBGM, MBHM, MBIM, MBKM, MBSM

10. Classification restrictions:
Not Applicable

11. List all the classifications (freshman, sophomore, junior, senior) that are to be included or excluded:
none

12. Level restriction:
Include

13. List the level (undergraduate, graduate) that is to be included or excluded.
GR

14. Do prerequisites and corequisites for 5000-level courses apply to undergraduates, graduates, or both?
Not Applicable

15. Is this a multi-topic course?
No

16. Proposed course title to be entered in Banner:
Data Analytics for MGR

17. Is this course repeatable for credit?
No

18. Is this course mandatory credit/no credit?
No

19. Select class type:
Lecture/Lab/Discussion

20. How many contact hours per week for this course?
3

A. Please choose Yes or No to indicate if this class is a Teacher Education class:
No

B. Please choose the applicable class level:
Graduate

C. Please respond Yes if this is a current general education course and/or a course being submitted for the new WMU Essential Studies program. Please respond No if it is neither.
No

D. Explain briefly and clearly the proposed improvement.
Re-engineer the MBA curriculum at Western Michigan University to provide entry and middle

level managers skills and knowledge that advance their careers through (1) credit for life experiences, (2) skill-based curricula, i.e. every course provides skills that can be immediately applied in professional life, and (3) hybrid/hyflex/online courses that maintain benefits of live relationships and interaction, but reduce the time required to be on-campus.

E. Rationale. Give your reason(s) for the proposed improvement. (If your proposal includes prerequisites, justify those, too.).

Popularity of the traditional MBA is shrinking. Between 2014 and 2018, the number of accredited full-time M.B.A. programs in the U.S. shrank 9% to 1,189, with schools reporting 119 fewer two-year degrees in the most recent survey by the Association to Advance Collegiate Schools of Business. For the second consecutive year, even the highest ranked business schools in the U.S. are beginning to report significant declines in M.B.A. applications and the worse is yet to come, with many M.B.A. programs experiencing double-digit declines. About 10% to 20% of the top 100 M.B.A. programs in the U.S. will likely close in the next few years, with even greater fallout among second- and third-tier schools. On-line and specialized skills (credentials) are increasing. Shorter and more-flexible graduate business degrees have proliferated. Specialized subjects like data analytics are growing at 16%, on-line MBA programs have doubled in the last six years. Enrollment in the MBA program at WMU overall has declined 31% from its peak in fall 2010 to fall 2018. Main campus enrollment was down 30.9% and enrollment at regional sites was down 42.1%.

F. List the student learning outcomes for the proposed course or the revised or proposed major, minor, or concentration. These are the outcomes that the department will use for future assessments of the course or program.

This course introduces the essential data analytics skills, techniques, and tools in preparing, managing, analyzing, and interpreting data to support strategic decision making in organizations. The course takes students from basic skills such as data extraction from popular data sources (e.g., web, cloud, and light-weight data sources), spreadsheet analysis & data modeling, ETL (extracting, transforming and loading), to some of the more advanced forms of analytics such as pivoting, data visualization, database methodologies, data mining/machine learning, big data, and cloud-based solutions.

After successfully completing this course, students will:

1. Use spreadsheets to perform Extracting, Transforming and Loading (ETL) from different sources of data
2. Understand and use spreadsheet modeling
3. Understand relational databases structure and create relational databases using data models
4. Understand data visualization theories and techniques and use visualization techniques for decision making
5. Understand big data concepts and use data reduction skill to work with big data
6. Understand cloud-based computing and its applications in business
7. Understand business analytics major tools and techniques
8. Understand different types of data analytics techniques and their applications in business

G. Describe how this curriculum change is a response to student learning assessment outcomes that are part of a departmental or college assessment plan or informal assessment activities.

This curriculum change is a result of research into market trends and the needs of business professionals and hiring organizations. Specific Learning Goals that will be assessed in the new program includes: 1. Students will be knowledgeable about and be able to put into practice effective Leadership Skills 2. Students will be knowledgeable about and be able to put into practice effective Communication Skills 3. Students will gain knowledge and be proficient in Strategic Decision Making by gaining an understanding of data analysis, functional business areas and the ability to develop strategic plans for business.

H. Effect on other colleges, departments or programs. If consultation with others is required, attach evidence of consultation and support. If objections have been raised, document the resolution. Demonstrate that the program you propose is not a duplication of an existing one.
N/A

I. Effect on your department's programs. Show how the proposed change fits with other departmental offerings.
This course allows students to meet the requirements of the new MBA core.

J. Effects on enrolled students: are program conflicts avoided? Will your proposal make it easier or harder for students to meet graduation requirements? Can students complete the program in a reasonable time? Show that you have considered scheduling needs and demands on students' time. If a required course will be offered during summer only, provide a rationale.
There will be no effect on students meeting the graduation requirements.

K. Student or external market demand. What is your anticipated student audience? What evidence of student or market demand or need exists? What is the estimated enrollment? What other factors make your proposal beneficial to students?
Our anticipated audience are our current Haworth College of Business graduate students as well as other graduate students at WMU. In the short-term, we do not anticipate any significant change in demand for this course.

L. Effects on resources. Explain how your proposal would affect department and University resources, including faculty, equipment, space, technology, and library holdings. Tell how you will staff additions to the program. If more advising will be needed, how will you provide for it? How often will course(s) be offered? What will be the initial one-time costs and the ongoing base-funding costs for the proposed program? (Attach additional pages, as necessary.)
There is no expected change in departmental or university resources.

M. With the change from General Education to WMU Essential Studies, this question is no longer used.
For courses requesting approval as a WMU Essential Studies course, a syllabus identifying the student learning outcomes and an action plan for assessing the student learning outcomes must be attached in the Banner Workflow system.
Not Applicable

N. (Undergraduate proposals only) Describe, in detail, how this curriculum change affects transfer articulation for Michigan community colleges. For course changes, include detail on necessary changes to transfer articulation from Michigan community college courses. For new majors or minors, describe transfer guidelines to be developed with Michigan community colleges. For revisions to majors or minors, describe necessary revisions to Michigan community college guidelines. Department chairs should seek assistance from college advising directors or from the admissions office in completing this section.
Not applicable

O. Current catalog copy:
N/A - this is a new course.

P. Proposed catalog copy:

MBA 6003: Data Analytics for Managerial Decision Making

This course introduces the essential data analytics skills, techniques, and tools in preparing, managing, analyzing, and interpreting data to support strategic decision making in organizations. The course takes students from basic skills such as data extraction from popular data sources (e.g., web, cloud, and light-weight data sources), spreadsheet analysis & data modeling, ETL (extracting, transforming and loading), to some of the more advanced forms of analytics such as pivoting, data visualization, database methodologies, data mining/machine learning, big data, and cloud-based solutions.

Prerequisites/Corequisites: None

Credits: 3 hours

Restrictions Enrollment in HCOB graduate business courses requires admission to the MBA or MSA program or the

MBA 6003: Data Analytics for Managerial Decision Making
Master Syllabus
Master of Business Administration

Course Description

This course introduces the essential data analytics skills, techniques, and tools in preparing, managing, analyzing, and interpreting data to support strategic decision making in organizations. The course takes students from basic skills such as data extraction from popular data sources (e.g., web, cloud, and light-weight data sources), spreadsheet analysis & data modeling, ETL (extracting, transforming and loading), to some of the more advanced forms of analytics such as pivoting, data visualization, database methodologies, data mining/machine learning, big data, and cloud-based solutions.

Course Prerequisites/Corequisites

Prerequisites & corequisites
Admission to the MBA or MSA program or the approval of the MBA advisor.

Policies and Procedures

Class participation and preparation
This hybrid course consists of four face-to-face meetings. You must attend all these meetings in person, unless your absence is approved by the instructor in advance. Class participation and regular attendance are expected. All students are also expected to read the assigned chapters prior to attending each class.

Exams and quizzes
We will have three exams. This breaks up the material into smaller chunks that are easier for students to retain and prepare.
Exams will be based on lectures, textbook(s), reading assignments, and labs. The tentative exam format will be true/false, multiple choice, fill-in-the-blanks, calculations, short essays, analysis and/or discussions. More will be announced before each exam.

Homework assignments
All homework assignments are due on the date specified on E-learning. You will be allowed **ONE (1)** late assignment. This late assignment gives you an extension of three **calendar days** after the due date. This offer will be available to you only **ONE time** during the semester and I encourage you to save it for an emergency. System failure, no backup disk, virus infection, being too busy, and other such excuses are not acceptable. As in the real world, you are responsible to make sure you are prepared.

When you decide to take this offer, you should clearly indicate your intention in writing through email before the due date of the assignment. If this is not followed, your assignment will be treated as a normal one, resulting in penalty in your grades. No assignment should be turned in

after the last quiz. This means that the late assignment cannot be used for the last assignment.

Unless otherwise permitted by the instructor, all assignments must be individually and independently completed. Should two or more students turn in substantially the same submission, in the judgment of the instructor, it will be considered a group effort. Both or all involved in a group effort will receive a zero for the assignment. A student involved in group efforts for more than one time will receive a grade of E for the course.

Assignment grades are awarded based on content and structural completeness, correctness, clarity, and neatness. There will be no makeup or extra assignments for any individual student.

Make-up exams
Students wishing to take a make-up exam should contact the instructor **prior to** the exams to receive his permission. Missed exams may only be handled with a documented excuse. Written verification for the student's inability to take an exam will be required. A documented excuse consists of a letterhead from a medical doctor and/or other responsible agents. Documentation will not be considered if it is not provided to the instructor within one week after the exam. If any of this is not followed, the grade is automatically zero for that exam. Makeup exams will be different from regular ones. There is no makeup for quizzes.

Incomplete grade
This is a temporary grade, which the instructor may give to a student when illness, necessary absence, or other reasons beyond the control of the student prevent completion of course requirements by the end of the semester or session. This situation must be supported with documentation.

This grade may not be given as a substitute for a failing grade. A grade of "I" must be removed by the instructor who gave it or, in exceptional circumstances, by the department chairperson. If the unfinished work is not completed and the "I" grade removed within one calendar year of the assignment of the "I," the grade shall be converted to an "E" (failure). Students who receive an incomplete grade in a course must not reregister for the course in order to remove the "I."

Communication

The team space at the Microsoft Teams site is our primary form of communication for the course. You are responsible for reading all discussions, messages and announcements on the e-learning web site. It is also perfectly fine to use email if something private needs to be discussed. Microsoft Teams and E-learning are used for the following reasons for the class.

Grading Policy

Gradable components	
Assignments (6 * 10%)	60%
Exams (Midterm: 20%; Final Exam: 20%)	40%
Total	100%
Grading scale	
92.0% or higher	Grade A
87.0% – 91.9%	Grade BA
82.0% – 86.9%	Grade B
77.0% – 81.9%	Grade CB
72.0% – 76.9%	Grade C
67.0% – 71.9%	Grade DC
62.0% – 66.9%	Grade D
61.9% or lower	Grade E

ACADEMIC INTEGRITY

Students are responsible for making themselves aware of and understanding the University policies and procedures that pertain to Academic Honesty. These policies include cheating, fabrication, falsification and forgery, multiple submission, plagiarism, complicity and computer misuse. The academic policies addressing Student Rights and Responsibilities can be found in the Undergraduate Catalog at http://catalog.wmich.edu/index.php?catoid=32 and the Graduate Catalog at http://catalog.wmich.edu/index.php?catoid=33. If there is reason to believe you have been involved in academic dishonesty, you will be referred to the Office of Student Conduct. You will be given the opportunity to review the charge(s) and if you believe you are not responsible, you will have the opportunity for a hearing. You should consult with your instructor if you are uncertain about an issue of academic honesty prior to the submission of an assignment or test. Students and instructors are responsible for making themselves aware of and abiding by the "Western Michigan University Sexual and Gender-Based Harassment and Violence, Intimate Partner Violence, and Stalking Policy and Procedures" related to prohibited sexual misconduct under Title IX, the Clery Act and the Violence Against Women Act (VAWA) and Campus Safe. Under this policy, responsible employees (including instructors) are required to report claims of sexual misconduct to the Title IX Coordinator or designee (located in the Office of Institutional Equity). Responsible employees are not confidential resources. For a complete list of resources and more information about the policy see www.wmich.edu/sexualmisconduct. In addition, students are encouraged to access the Code of Conduct, as well as resources and general academic policies on such issues as diversity, religious observance, and student disabilities:

- Office of Student Conduct www.wmich.edu/conduct
- Division of Student Affairs www.wmich.edu/students/diversity
- Registrar's Office http://www.wmich.edu/registrar/calendars/interfaith
- Disability Services for Students www.wmich.edu/disabilityservices."

Topic Coverage (15 Weeks Course)

Part I: Excel for Decision-making

Section 1: Essential Excel Functions for Data Analytics (2 week)

- Lookup, searching (fuzzy search, partial match, and pattern matching), sorting
- Descriptive analytics
- Data aggregation techniques
- Advanced functions

Section 2: Spreadsheet Modeling and ETL(Extracting, Transforming and Loading) (3 week)

- ETL techniques
- Cost projections and breakeven analysis
- Decisions involving the time value of money
- Estimating the relationship between price and demand
- Ordering with quantity discounts and demand uncertainty
- EMV and decision trees
- One-stage decision problems
- Multistage decision problems
- Sensitivity analysis

Part II: Relational Database, Data Models and Data Sources

Section 3: Databases, Data Model and Multiple Data Sources (1 week)

- Introduction to Relational Databases
- Excel's data model
- Data relationships and joins
- Creating and editing queries
- Importing data from different sources to Excel
- Multiple data sources popular in the industry. E.g., databases (server and local), cloud-based and web data, ERP, and standard-based data formats (XML, JSON, SharePoint, ODBC, etc.)

Part III: Data Visualization Techniques

Section 4: Power Query and Power Pivot (2 weeks)

- Basing pivot tables on a data model
- Visual queries versus standard-based queries
- Calculated columns, measures, and the DAX language

Section 5: Data Visualization with Specialized Visualization Tools (2 week)

- Data visualization theories and techniques

- Introduction to visualization tools (Power BI and/or Tableau)
- Business problems that each visual is designed to answer
- Dashboards and integration of data from different data sources
- Storytelling using visualization in visualization tools

Part IV: Big Data, Cloud-based Analytics and Analytics Automation

Section 6: Big Data (2 weeks)

- Introduction to Big Data
- Common Big Data environments
- Data access and manipulation with Big Data (e.g., Hadoop, Microsoft HDInsight or Amazon Web Services) using Excel and visualization tools
- Data reduction techniques using Excel and visualization tools when working with Big Data

Section 7: Cloud-based and Automated Analytics (1 week)

- Access to cloud storage
- Analytics in the cloud
- Automated analytics
- Crowd analytics (or wisdom of the crowd)

Part V: Introduction to predictive analytics

Section 8: Introduction to basic predictive analytics (2 weeks)

- Types of analytics
- Supervised versus unsupervised learning
- Model performance evaluation
- Case studies on business problems, analytical techniques and tools (e.g., Excel macros & VBA, machine learning/data mining, and artificial intelligence)