Department of Management Information Systems
Academic Year 2017-18 Assessment Report

All areas shaded in gray are to be completed by the department/program.
This document will be posted online and must be accessible electronically (including appendices).

MISSION STATEMENT
The mission of the Management Information Systems Department is to provide service courses in information systems, quantitative analysis, operations management, and business law and to equip MIS graduates with the knowledge and skills necessary to: (1) apply information systems and technology in an organization; (2) work effectively as an individual, a team member, and a leader; and (3) effectively communicate within the MIS team and the organization.

DEPARTMENT OBJECTIVES and ALIGNMENT WITH STRATEGIC ISSUES
1. Present a current, relevant curriculum that meets the needs of our stakeholders and allows MIS majors to get great MIS careers (UM Communities of Excellence (Science & Technology, Business & Entrepreneurship, and Environment & Sustainability).
2. Inform the curriculum with assessment data, input from our Advisory Board, reference to a nationally recognized model curriculum, and data from surveys of students, alumni, and their employers (Dynamic Learning Environment & Discovery and Creativity to Serve Montana and the World).
3. Provide students with opportunities to apply management information systems concepts and theories in practical settings (Ways of Communicating, Ways of Creating, Ways on Knowing, and Ways of Living).
4. Conduct research in management information systems, including innovative organizational uses of cutting-edge technology (Science & Technology, Business & Entrepreneurship, and Environment & Sustainability).
5. Developed a certificate program in “Big Data,” partnering with industry leaders and other UM departments (Science & Technology, Business & Entrepreneurship, and Environment & Sustainability).
6. Developed certificate programs in Cybersecurity Management at the graduate and undergraduate level as well as collaborate with Missoula College’s IT program on the Cybersecurity Professional certificate (Science & Technology, Business & Entrepreneurship, and Environment & Sustainability).
### STUDENT LEARNING GOALS and MEASUREMENT TOOLS

<table>
<thead>
<tr>
<th>Student Learning Goals</th>
<th>Technical Knowledge Rubric</th>
<th>Business Problem, MOV, &amp; Problem Solving Rubrics</th>
<th>System Requirements, Design &amp; Product Created Rubrics</th>
<th>Teamwork Rubric</th>
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<tbody>
<tr>
<td>1. MIS students will demonstrate command of the technical skills appropriate for the MIS major.</td>
<td>Fall 2017 &amp; Spring 2018 Projects (3.14 out of 4)</td>
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<td>2. MIS graduates will analyze complex organizational problems.</td>
<td>Fall 2017 &amp; Spring 2018 Projects (2.87 out of 4)</td>
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<td>3. MIS graduates will develop technological solutions that address organizational problems.</td>
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<td>Fall 2017 &amp; Spring 2018 Projects (3.03 out of 4)</td>
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<td>4. MIS students will work competently as part of a team or in a leadership role.</td>
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RESULTS and MODIFICATIONS
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<th>Learning Goal results</th>
<th>Modifications made to enhance learning</th>
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<tbody>
<tr>
<td>1. MIS students will demonstrate command of the technical skills appropriate for the MIS major. Thirteen projects, involving 57 students, were assessed with a project management rubric. The technical knowledge criterion was assessed for this goal. The projects averaged a 3.14 out of 4 for technical knowledge.</td>
<td>The MIS Department Assessment from 2012, 2014, &amp; 2016 had ratings of 3.05, 3.02 and 3.25 out of 4 for technical knowledge. There was a slight drop in this assessment cycle to 3.14 or 3.5%. This is not a significant drop given the ever-changing technical solutions. There is no further action necessary for this learning goal.</td>
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</tbody>
</table>
2. MIS graduates will analyze complex organizational problems.

Thirteen projects, involving 57 students, were assessed with a project management rubric. The business problem, measurable organizational value (MOV), and problem solving criteria were assessed for this goal. The projects averaged a 2.76 for business problem, 2.77 for MOV, & 3.08 for problem solving on a 4-point scale. The overall average is 2.87 out of 4.

The MIS Department Assessment from 2012, 2014, & 2016 had an overall average for the three areas of 2.84, 2.76, & 3.16. The 2018 assessment showed a decrease to 2.76, which is a 14% decrease in the three areas of business problem, MOV, and problem solving. The MIS Department offers a Big Data Certificate for students. When only looking at the Big Data Students the overall average for this goal was 2.72 or a reduction of 1.5%.

**Actions taken:** The professors teaching Systems Analysis & Design and Project Management will work to develop templates and learning tools to help MIS students better understand business problems and organizational goals (MOV). The professors teaching Operations Management, which is a lower business core class will incorporate lessons on identifying business problems in the problem solving process. The rest of the MIS curriculum also needs to reinforce the importance of solving business problem when developing and implementing management information systems. There is no further action necessary for this learning goal.

**Areas of Improvement:** The Big Data students had lower assessment ratings than the other MIS students. Part of this is due to Big Data students not being required to take all of the MIS curriculum. The Big Data Certificate is popular for graduate students and Marketing majors. The MIS foundations class in Big Data is Introduction to Data Analytics is a course all Big Data students take. The primary emphasis of this course is to teach students the tools for analyzing data. This course will work to provide students with the business problems that the data sets they are analyzing are trying to solve.
3. MIS graduates will develop technological solutions that address organizational problems.

Thirteen projects, involving 57 students, were assessed with a project management rubric. The system requirements, system design, and final system or prototype were assessed for this goal. The projects averaged a 2.86 for system requirements, 3.05 for system design, and 3.17 for the final system or prototype on a 4-point scale. The overall average was 3.03.

The MIS Department Assessment from 2012, 2014, & 2016 had overall ratings of 2.74, 2.57, and 2.96). The 2018 assessment showed an increase in all three areas measured, and the overall average of 3.03 represents an increase of 1.7% for this goal.

**Areas of Improvement:** Professors in MIS will continue to reinforce the changing nature of technology and the developing of new methods. All courses will try to reinforce the importance of the systems analysis and design skill to developing solutions to business problems.

**Big Data Areas of Improvement:** The Big Data students had an overall average of 2.70, which is up from 2.57 in 2016. This is an emerging discipline and the technical solutions are also evolving. The Big Data curriculum will continue to emphasize the importance of the right technological solutions to address business problems. The Big Data students had lower assessment ratings than the other MIS students. Solutions to Big Data problems are different than what the other MIS student teams are creating. The professor teaching Project Management needs have a Big Data professor mentor the Big Data teams as well as a professional working in a Big Data field.

4. MIS students will work competently as part of a team or in a leadership role.

Thirteen projects, involving 57 students, were assessed with a project management rubric. The projects averaged a 3.27 for teamwork on a 4-point scale.

The MIS Department Assessment from 2012, 2014, and 2016 had a ratings of 2.90, 3.17, and 3.34 out of 4 for teamwork. The 2018 assessment had a rating of 3.27. The benchmark the MIS Department set for all goals is a rating of 3.0. This is a slight decrease, but the rating is above the benchmark. There is no further action necessary for this learning goal.

**Major Field Test Results**

All business majors take the Major Field Test (MFT), which is a nationally-normed exam prepared by Educational Testing Services (ETS). The appendix includes the results from Fall of 2017 and Spring of 2018.

- For Fall of 2017, MIS students scored above the 90th percentile in business areas of Marketing and Information Systems. Areas below the 90th percentile included Accounting, Economics, Management, Quantitative Business Analysis, Finance, Legal, and International Issues. Of these, MIS students were above the 60th percentile in five areas and above the National Mean Percent Correct. The Fall 2017 MFT reinforces that MIS majors have mastered most fundamental business knowledge compared to their peers at other business schools.
- For Spring 2018, MIS students scored above the 90th percentile in business areas of Management, Marketing, and Information Systems. The only areas falling below the 70th percentile were Economics, Legal, and International Issues. The Spring 2018 MFT, which captures the majority of graduates during the
academic year, reinforces that MIS majors have mastered fundamental business knowledge compared to their peers at other business schools.

- No actions are necessary for MIS majors based on their performance on the Major Field Test.

**Curriculum Map**

The MIS Department prepared a curriculum map based on the rubric used to assess the project books from students in the Project Management capstone course. Another curriculum map was created based on the MIS Department learning goals. Both maps are in the Appendix. The curriculum maps show that the concepts and learning goals are introduced and reinforced in many of the courses in the curriculum. Only one of the areas is marked at the mastered level. MIS faculty felt that since the field is rapidly changing (software changes about every 18 months), that it is impossible to teach any of the skills at the mastery level. It is important that students have skills to analyze difficult business problems and select the best analytical tools, methods, and technology at that point in time to solve the problems.

**FUTURE PLANS FOR CONTINUED ASSESSMENT**

MIS faculty will continue to assess projects in the Project Management senior capstone course. All business seniors will take the Major Field Test in Business, and COB will conduct assessments for our seniors in the areas of writing, oral presentations, problem solving, and integrating/applying business concepts. As technology evolves, the projects to solve business problems are more complicated and it is difficult to normalize those projects against previous assessments. The MIS field has higher expectations on projects given the level of technical solutions that are available and the skills that students acquire. The next MIS Department assessment cycle will have students provide peer ratings on all project presentations using the Project Management rubric. The capstone professor will make several top books available for students to review, so they have examples of excellent work in the MIS field. The final report created by students in Project Management will be designed to have direct artifacts to measure performance on the MIS Department’s Learning goals. Faculty reviewers and outside reviewers will watch recordings of the student presentations as well as review the final reports to rate the learning goals and compare those ratings to the student peer ratings.

**APPENDICIES**

1. Project Management Rubric
2. MIS Projects Assessment for 2016 on 13 projects involving 56 students
3. Big Data Projects Compared to all other MIS Projects
4. SoBA Programs & How they Contribute to the UM Strategic Plan
5. Major Field Test Results for Fall 2015
6. Major Field Test Results for Spring 2016
7. Curriculum Maps
Appendix 1: Project Management Rubric
<table>
<thead>
<tr>
<th>Criteria</th>
<th>Beginning</th>
<th>Developing</th>
<th>Experienced</th>
<th>Professional</th>
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<tbody>
<tr>
<td>Identify the Business Problem</td>
<td>Basic recognition of business problem with minimal detail &amp; understanding.</td>
<td>Recognizes the business problem with some comprehension of the level of complexity.</td>
<td>Recognizes the business problem with adequate understanding of the level of complexity.</td>
<td>Clear recognition of the business problem and fully understands its complexity &amp; its strategic implications for the organization.</td>
</tr>
<tr>
<td>Measurable Organizational Value (MOV)</td>
<td>MOV is poorly stated and not measurable.</td>
<td>MOV is stated but not measurable.</td>
<td>MOV is adequately defined and measurable as well as shows a link to solving the business problem.</td>
<td>MOV is well defined, measurable, and shows a clear link to solving the business problem and the strategy of the organization.</td>
</tr>
<tr>
<td>Research &amp; Information Gathering</td>
<td>Little research was conducted or information gathered to solve the business problem.</td>
<td>Some research was conducted and information gathered to solve the business problem.</td>
<td>Adequate research was conducted and information gathered to solve the business problem.</td>
<td>Research conducted and information gathered was relevant to completely solve the business problem.</td>
</tr>
<tr>
<td>Analysis of Information System Requirements</td>
<td>Little analysis conducted on the information system and its requirements.</td>
<td>Some analysis conducted on the information system and its requirements.</td>
<td>Adequate analysis was conducted on the information system and its requirements.</td>
<td>Complete analysis conducted on the information system and its requirements.</td>
</tr>
<tr>
<td>Design of Information System</td>
<td>The system design does a poor job of capturing the requirements and few documents were created (flow charts, data flow diagrams, ER diagrams, site maps, website layout, etc.).</td>
<td>The system design somewhat captures the requirements and some diagrams were created (flow charts, data flow diagrams, ER diagrams, site maps, website layout, etc.).</td>
<td>The system design adequately captures the requirements and an adequate amount of diagrams were created (flow charts, data flow diagrams, ER diagrams, site maps, website layout, etc.).</td>
<td>The system design completely captures the requirements and shows creativity in the design of the information system. All appropriate diagrams were created (flow charts, data flow diagrams, ER diagrams, site maps, website layout, etc.).</td>
</tr>
<tr>
<td>Project Management Documents</td>
<td>The project documents (plan, schedule, budget, communication plan, risk management plan, etc.) do a poor job of describing the steps to design, create, test, and implement the information system.</td>
<td>The project documents (plan, schedule, budget, communication plan, risk management plan, etc.) somewhat show the steps to design, create, test, and implement the information system.</td>
<td>The project documents (plan, schedule, budget, communication plan, risk management plan, etc.) adequately show the steps to design, create, test, and implement the information system.</td>
<td>The project documents (plan, schedule, budget, communication plan, risk management plan, etc.) clearly and completely show the steps to design, create, test, and implement the information system.</td>
</tr>
<tr>
<td>Final Information System or Prototype</td>
<td>The information system created poorly captures the system design, but won’t solve the business problem.</td>
<td>The information system created captures some of the system design, but does little to solve the business problem.</td>
<td>The information system created adequately captures the system design and should solve the business problem.</td>
<td>The information system created clearly captures the system design and will solve the business problem.</td>
</tr>
<tr>
<td>Problem Solving</td>
<td>• Team fails to select and implement the relevant concepts, procedures, and strategies needed to create the information system. • Team fails to consider most constraints and stakeholders of the information system. • The information system created does not solve the business problem.</td>
<td>• Team selects and implements some of the relevant concepts, procedures, and strategies needed to create the information system. • Team considers some constraints and stakeholders of the information system. • The information system created solves some of the business problem.</td>
<td>• Team adequately selects and implements relevant concepts, procedures, and strategies needed to create the information system. • Team considers most constraints and stakeholders of the information system. • The information system created adequately solves the business problem.</td>
<td>• Team completely selects and implements relevant concepts, procedures, and strategies needed to create the information system. • Team completely considers all constraints and stakeholders of the information system. • The information system created completely solves the business problem.</td>
</tr>
<tr>
<td>Technical Knowledge</td>
<td>Team did a poor job of learning the technology required to create the information system.</td>
<td>Team learned some of the technology required to create the information system.</td>
<td>Team adequately learned the technology required to create the information system.</td>
<td>Team clearly learned and mastered the technology and deployed it appropriately to create the information system.</td>
</tr>
</tbody>
</table>
| Teamwork | The team did not work together to achieve objectives for the project.  
|          | Some members worked independently, without regard to project objectives or priorities.  
|          | Team showed a lack of respect for each other. | The team worked somewhat together to achieve objectives for the project.  
|          | Some members contributed in a valuable way to the project.  
|          | Team was somewhat respectful of each other. | The team worked adequately together to achieve objectives for the project.  
|          | Most members contributed in a valuable way to the project.  
|          | Team was mostly respectful of each other. | The team worked well together to achieve objectives for the project.  
|          | Each member contributed in a valuable way to the project.  
|          | Team exhibited a high level of mutual respect and collaboration. |
Appendix 2: IS Projects Assessment for 2018 on 13 projects involving 57 students

### MIS Projects Assessment
**Fall 2016**

<table>
<thead>
<tr>
<th></th>
<th>2012 Average Scores</th>
<th>2014 Average Scores</th>
<th>2016 Average Scores</th>
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<td>3.09 2.69 2.59 2.48</td>
<td>2.80 2.53 2.42 2.23</td>
<td>3.16 3.15 3.02 2.81</td>
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<td>2.69 3.09 3.05 2.73</td>
<td>3.05 2.89 2.94 3.02</td>
<td>3.26 3.15 3.00 3.25</td>
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<td>3.05 2.73</td>
<td>3.02 3.17</td>
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### Rubric Criteria

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<tr>
<th>Projects</th>
<th>Business Problem</th>
<th>MOV</th>
<th>Research &amp; Info. Gathering</th>
<th>System Requirements</th>
<th>Design of System</th>
<th>Project Mgmt Docs</th>
<th>Final System or Prototype</th>
<th>Problem Solving</th>
<th>Technical Knowledge</th>
<th>Teamwork</th>
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| **UNAHA.Org Website** |                  |     |                           |                     |                  |                  |                           |                |                    |          |
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| Furniss              | 2.5              | 3   | 3                         | 2.75                | 3.25             | 3.5              | 3.5                       | 4              | 4                  | 2.75     |
| Harrington           | 2.5              | 3   | 3                         | 2.5                 | 3                | 3.5              | 4                         | 4              | 4                  | 3        |

| **Virtual Local Commodities – Montana AG Direct Website** |                  |     |                           |                     |                  |                  |                           |                |                    |          |

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**Headframe Distillery Ambassador Program Website**

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**FITS Fill-in Therapy Services Website**

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**DataSmart Solutions Healthcare “Big Data” Project**

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All ratings range from 1 to 4 with 4 being the highest.
**Appendix 3: Big Data Projects Compared to all other MIS Projects**

**MIS Projects Assessment - Big Data**

**Fall 2016**

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**DataSmart Solutions Healthcare “Big Data” Project**

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Appendix 4: SoBA Programs & How they Contribute to the UM Strategic Plan

SoBA serves approximately 1,500 students who are declared undergraduate majors in business, MBA students, and Masters of Accountancy (MAcct) students, presenting a significant proportion of the UM student population. The following illustrates examples of how business programs contribute to the UM Strategic Plan:

Partnering for Student Success –

- SoBA Central is a centralized umbrella of services that includes advising, internships, and career development programs for all SoBA students. Located on the third floor of the Gallagher Business Building, SoBA’s Advising Office is staffed by a professional advisor and peer advisor, offering walk-in advising services five days a week, as well as appointments. In addition, departments offer group advising sessions to communicate SoBA-wide advising information along with major-specific information. SoBA has a half-time Internship Director that vets and supervises all SoBA internships, regardless of major. The Internship Director meets individually with students desiring to establish an internship for academic credit and coordinates with the UM internship services.
- SoBA has a Recruitment, Retention, and Career Development committee that addresses the student experience and student success. This committee is chaired by the SoBA Central Director and includes faculty and staff.
- SoBA’s placement rates are excellent. Based on spring 2014 surveys, 76 percent of graduating undergraduates had a job or were headed to graduate school.

Education for the Global Century –

- SoBA's undergraduate program includes as a learning goal global awareness. Assessment measures indicate strong achievement of this learning goal.
- SoBA participates in a number of faculty-led study abroad programs. In 2013-2014, these included Germany, Italy, New Zealand, and Romania.
- The Management, Marketing, and International Business majors require an international business course in the degree program. We also have international-focused courses that are open to any SoBA major, such as Multinational Finance and Global Supply Chain Mgmt.
- The Montana World Trade Center is housed in the Gallagher Business Building. The MWTC offers students internships where they learn about international trade.

Discovery and Creativity to Serve Montana and the World –

- In spite of high teaching loads (3/3), SoBA faculty are very research-active. In 2014, the top social science poster presentation award at the UMCUR went to an accounting student, mentored by an accounting faculty member.
- SoBA faculty in all departments serve on journal editorial boards and in academic association leadership.
- In the last five years, SoBA faculty have served on over two dozen nonprofit boards and two dozen corporate or professional organization boards.

Dynamic Learning Environment –

- Central to SoBA's mission is providing relevant experiences to provide a world-class business education. Many SoBA classes are experiential, requiring application of concepts learned. The following are examples of activities embedded in undergraduate courses.
- Marketing students prepare marketing plans for local businesses, nonprofits, and sports organizations
- Accounting students prepare about 700 income tax returns for local low income taxpayers
- MIS students complete IT projects for local businesses and UM departments.
- Finance students invest $50,000 under the guidance of a DA Davidson investment advisor
## Appendix 5: Major Field Test Results for Fall 2015

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**Legend:**

- Percentiles, based on students from 563 universities

* Not enough students for ETS to analyze
### Appendix 6: Major Field Test Results for Spring 2016

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**Legend:**
- Percentiles, based on students from 563 universities

* Not enough students for ETS to analyze
## MIS Curriculum Map to Evaluation Rubric Fall 2016

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Note: I=Introduced, R=Reinforced, & M=Mastered
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<th>Develop Technical Solutions for Organizational Problems</th>
<th>Work as part of a Team or in a Leadership Role</th>
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Note: I= Introduced, R= Reinforced, & M= Mastered