ERP 6220 Data Modeling & Visualization Prototyping for Enterprise Decision Dashboards
Course Syllabus – Fall 2018

Department of Business & Information Technology Mission

“To serve the economic interests of industry and the evolving needs of society in a challenging, rapidly-changing, global environment, the Department of Business & Information Technology capitalizes on the strong technological emphasis of Missouri S & T to enable individuals to excel in a technology-centric business world. Recognizing this rapid evolution of the marketplace, we create and disseminate knowledge impacting the theory and practice of business.”

INSTRUCTOR AND COURSE INFORMATION

<table>
<thead>
<tr>
<th>Instructor:</th>
<th>Bih-Ru Lea, Ph.D.</th>
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<tbody>
<tr>
<td>Office:</td>
<td>Fulton 102A</td>
</tr>
<tr>
<td>Phone:</td>
<td>573-341-6436</td>
</tr>
<tr>
<td>E-Mail:</td>
<td><a href="mailto:leabi@mst.edu">leabi@mst.edu</a></td>
</tr>
<tr>
<td>Course Credit:</td>
<td>3 semester hours of credit</td>
</tr>
<tr>
<td>Prerequisite:</td>
<td>ERP 5110 and one of (ERP/IST 6444 or ERP5410)</td>
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<tr>
<td>Class Hours:</td>
<td>M W F 9 am – 9:50 am</td>
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<tr>
<td>Class room:</td>
<td>Fulton 107A</td>
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<tr>
<td>Office Hours:</td>
<td>M W 10 am – 11 noon</td>
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<td></td>
<td>T 12 pm – 1 pm</td>
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<td></td>
<td>And by appointment (suggest a time via email)</td>
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<tr>
<td>Class Web:</td>
<td><a href="http://canvas.mst.edu">http://canvas.mst.edu</a></td>
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COURSE CATALOG DESCRIPTION:

Study how to integrate data modeling and visualization prototyping in design and implementation of enterprise decision dashboards for descriptive, predictive, and prescriptive analytics. Assignments and project implementations use SAP HANA Studio, Fiori, Predictive Analytics/Lumira, Design Studio, IBM Watson, and SAS Visual Analytics.

COURSE OBJECTIVES

Strategic Enterprise Management involves analyzing how effectively a company is attaining its strategic objectives as well as developing an effective performance management and reporting system. The main objectives of this course are to stimulate the student’s problem-solving abilities and critical thinking skills and to improve student’s communication skills. As a result of taking this course, students are expected to be able to demonstrate:

<table>
<thead>
<tr>
<th>Course Objectives</th>
<th>Program Learning Objectives</th>
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<tr>
<td></td>
<td>Communication Skills</td>
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<tr>
<td>• an understanding of competitive strategies from leveraging the information technology</td>
<td>X</td>
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<tr>
<td>• an understanding of roles, applications, and impact of decision dashboards on enterprise mobile strategies and Big Data Analytics</td>
<td>X</td>
</tr>
<tr>
<td>• an understanding of principles of Visual Design and Design Thinking in dashboard design and implementation</td>
<td>X</td>
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<tr>
<td>• an understanding and be able to communicate fundamental concepts of business analytics, data visualization, decision dashboards, and data warehouse</td>
<td>X</td>
</tr>
<tr>
<td>• abilities to design and implement an effective analytical dashboard to support decision making in both on-premises and enterprise cloud environments</td>
<td>X</td>
</tr>
<tr>
<td>• abilities to design and implement an effective data warehouse to support business analytics, visualization, and performance management</td>
<td>X</td>
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TEXTBOOK(S) AND MATERIALS FOR COURSE
GRADING POLICIES AND PROCEDURES:

<table>
<thead>
<tr>
<th>Test 1</th>
<th>100 pts</th>
<th>Class Project</th>
<th>120 pts</th>
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<tbody>
<tr>
<td>Test 2</td>
<td>100 pts</td>
<td>Presentation &amp; Prototype demo (60 pts)</td>
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<tr>
<td>Assignments (labs, case presentation, class discussions, quiz, etc.)</td>
<td>680 pts</td>
<td>Final Report &amp; Prototype (60 pts)</td>
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**Grading Scale:**


**General Grading Policies:**

1. **ALL ASSIGNMENTS AND TESTS ARE INDIVIDUAL WORKS UNLESS OTHERWISE SPECIFIED.**
2. All assignments should be handed in at the beginning of class on the date announced. **NO LATE ASSIGNMENTS WILL BE ACCEPTED.**
3. Please make every effort to make it to class on time. It is disruptive to the class to have members arriving late.
4. Attendance is encouraged. If you are unable to attend a class, you need to **turn in assignments in advance** (ask a friend to turn it in for you, use digital drop box provided by blackboard, etc.). You are also responsible for finding out what was covered in class and what announcements were made as well as obtaining handouts.
5. The instructor will assign NO incompletes in lieu of a regular grade.

**Exams, Tests, and Quizzes**

1. There will be two tests. **All exam materials may become property of the instructor after completion.**
2. It is possible to have announced and pop quizzes throughout the semester. Student will be given the date of announced quizzes one week in advance.
3. Exam dates and quizzes are a part of the class schedule. Failure to appear for an exam/quiz will result in the assignment of a zero for that exam/quiz. If you are going to miss an exam with a legitimate reason (e.g., scheduled surgery, official University business, etc.), contact the instructor PRIOR to the administration of that exam/quiz. A make-up quiz/test may be allowed during the final exam period only if convincing reasons and proper documentations (such as a doctor's note in case of a surgery/illness) are given for the absence. The make-up exam will be a comprehensive exam covering the material from throughout the course.
4. All in-class quizzes and tests are closed books and closed notes unless otherwise specified.

**Lab Assignments**

Lab Assignments will mostly involve completion of hands-on exercises and, unless otherwise informed, are due on the following class period in which it was assigned.

**Class Project:**

Each student will complete a class project that involves design and implementation of a strategic management system for an organization. Students may **NOT** receive these papers back, so if students want a copy, s/he better keeps one for him/herself. However, students may come review my comments on the report after they are graded.

**Class Participation:**

- Overall, student participation and discussion is essential to ensure that the course topics are understood and are made relevant to actual business situations encountered in the workplace. As such, attendance and participation are an essential factor in the learning process and a tool for assessing student learning. Therefore, you are encouraged and expected to attend all classes.
- Each 10% **unexcused absences will result in loss of a letter grade**. For example, if your grade is a B and you have missed 10% of classes without legitimate excuses, you will end up with a C.
- The instructor reserves the right to drop a student if a student has missed more than 20% of class time.
GENERAL COURSE POLICIES:

US Federal Law Title IX

Missouri University of Science and Technology is committed to the safety and well-being of all members of its community. US Federal Law Title IX states that no member of the university community shall, on the basis of sex, be excluded from participation in, or be denied benefits of, or be subjected to discrimination under any education program or activity. Furthermore, in accordance with Title IX guidelines from the US Office of Civil Rights, Missouri S&T requires that all faculty and staff members report, to the Missouri S&T Title IX Coordinator, any notice of sexual harassment, abuse, and/or violence (including personal relational abuse, relational/domestic violence, and stalking) disclosed through communication including but not limited to direct conversation, email, social media, classroom papers and homework exercises.

Missouri S&T’s Title IX Coordinator is Mr. Neil Outar. Contact him directly (equity@mst.edu; (573) 341-7734; 203 Centennial Hall) to report Title IX violations. To learn more about Title IX resources and reporting options (confidential and non-confidential) available to Missouri S&T students, staff, and faculty, please visit http://equity.mst.edu/.

Disability Support Services: http://dss.mst.edu

If you have a documented disability and anticipate needing accommodations in this course, you are strongly encouraged to meet with me early in the semester. You will need to request that the Disability Services staff send a letter to me verifying your disability and specifying the accommodation you will need before I can arrange your accommodation. If you have a disability that might require academic accommodations, please visit Disability Support Services in 204 Norwood Hall (341-4211; dss@mst.edu) very early in the semester.

Student Honor Code and Academic Integrity: http://registrar.mst.edu/academicregs/index.html

Violations of the University’s academic code include, but are not limited to, possession of or use of unauthorized materials during quizzes or tests; providing unauthorized information to another student; or copying the work of another person. Violations may result in academic penalties in addition to receiving an “F” on the assignment in question.

Page 30 of the Student Academic Regulations handbook describes the student standard of conduct relative to the University of Missouri System's Collected Rules and Regulations section 200.010, and offers descriptions of academic dishonesty including cheating, plagiarism or sabotage. Additional guidance for faculty, including the University’s Academic Dishonesty Procedures, is available on-line at http://ugs.mst.edu. Other informational resources for students regarding ethics, integrity and the student honor code can be found online at

- http://ugs.mst.edu/academicintegrity/studentresources-ai/
- http://stuco.mst.edu/about/honor.shtml

Lateness

Normally, the instructor will be in class on time. However, if the instructor is late by more than fifteen minutes, students should check with the Department of Business Administration located in Fulton 101 whether the class will be canceled. Students are expected to be in class on time.

Classroom Egress Maps: http://registrar.mst.edu/links/egress.html

Please familiarize yourself with the classroom egress maps posted on line so you will know where emergency exits are located.

KEY DATES:

- The last day to add this course is Friday, August 31, 2018.
- The last day to withdraw from this course without a “WD” showing on transcript is Monday, October 1, 2018
- The last day for dropping this course is Friday, November 9, 2018.
# ERP6220 Fall 2018 Course Schedule

<table>
<thead>
<tr>
<th>Week of</th>
<th>Topic</th>
<th>Readings</th>
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| 8/20, 8/22, 8/24 | Course Overview  
The Art and Influence of Data Visualization  
Introduction to Performance Dashboards  
**Preparation:** Account Setup, Dashboard Examples | Notes, Ch. 1 R1 |
| 8/27, 8/29, 8/31 | Types of Dashboard  
**Lab 1:** Visualization using SAP Predictive Analytics/Lumira & SAS Visual Statistics | R2 Ch. 3, Ch. 4 |
| 9/3, 9/5, 9/7 | Monday, September 3: Labor Day Holiday (NO CLASS)  
Common Dashboard Design Mistakes  
**Lab 2:** SAP Fiori App: Sales App design using SAP Splash Build | Ch. 2 Notes |
| 9/10, 9/12, 9/14 | Principles of Visual Design and Design Thinking  
**Lab 3:** SAP Fiori App: Sales Order with Details suing Smart Template | Notes |
| 9/17, 9/19, 9/21 | Graphs and Display Media  
**Lab 4:** SAP Fiori App: Master-Details Sales App using SAP Netweaver Gateway & Google Map | Ch. 8–Ch. 12 Notes |
| 9/24, 9/26, 9/28 | Tapping into the Power of Visual Perception  
Data Warehousing | Ch. 5 R3 |
| 10/1, 10/3,10/5 | Case Presentation 1: Data Warehouse Design Examples (10/4)  
**Test 1:** Concept test (10/5), Take Home Computer Operation (due 10/12) | R6, R7 |
| 10/8,10/10,10/12 | Data Warehouse: Dimensional Modeling Process and Tasks  
In-memory Computing: SAP HANA Data Modeling  
**Lab 5:** SAP HANA Data Modeling | R4 Notes |
| 10/15, 10/17, 10/19 | Data Warehouse and Business Intelligence Life Cycle | R5 |
| 10/22, 10/24, 10/26 | Big Data and Business Analytics  
**Lab 6:** Design Studio: Dashboard Design: Integrating SAP BW BEx Query, HANA Analytical View, and SAP Predictive Analytics | Notes |
| 10/29, 10/31, 11/2 | Data Mining & Visualization for Descriptive, Predictive, Prescriptive Analytics  
**Lab 7:** Dashboard Design using SAS Visual Analytics Report 1 | R8 |
| 11/5, 11/7, 11/9 | Data Mining & Visualization in Dashboard Development  
**Lab 8:** Dashboard Design using SAS Visual Analytics Report 2 | R8 |
| 11/12, 11/14, 11/16 | Case Presentation 2: Anonymization, De-Identification, and Data Quality  
**Lab 9:** Data Mining using SAS Visual Statistics & SAP Predictive Analytics  
**Test 2** Take home exam provided on 11/12 and due 11/26 | R9, R10 |
| 11/19, 11/21, 1/23 | Thanksgiving Break (NO CLASS) | |
| 11/26, 11/28, 11/30 | Putting it all together in Software Development  
**Lab 10:** IBM Watson Analytics: Visualization, Modeling, and Beyond  
**Test 2** Concept Test (11/30) | Ch. 6, Ch. 13, Ch. 14 |
| 12/3, 12/65 12/7 | Course Review  
Project Presentation and Prototype Demo | |
| 12/10 – 12/14 | Final Exam Week (No in class final exam)  
- **Project Prototype & Report due at noon on Friday, December 13** | |

**Note:** It is possible, due to extenuating circumstances that exact coverage and sequencing of course content, grading criteria and weights may change. Students will be notified as far in advance of such changes.


Reading 10 (R10): Ch. 13 De-Identification and Data Quality: A Clinical Data Warehouse, in *Anonymizing Health Data*, 1st Edition