

**ERP 5210 Performance Dashboards, Scorecard, and Data Visualization
Course Syllabus – Spring 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

Instructor: Bih-Ru Lea, Ph.D.	Class Hours: MWF 9 am – 9:50 pm
Office: Fulton 102A	Class room: Fulton 107A
Phone: 573-341-6436	Office Hours: Monday & Wednesday: 10 am – 11 am
E-Mail: leabi@mst.edu	Tuesday: 11 am – 12 noon
Course Credit: 3 semester hours of credit	by appointment (suggest a time via email)
Prerequisite: ERP 2110 or preceded or accompanied by ERP 5110	Class Web: http://Canvas.mst.edu

COURSE CATALOG DESCRIPTION:

This course will study different performance management systems including dashboards, management cockpit, scorecards, and strategy maps in an organization. SAP's BW, Predictive Analytics/Lumira, and Design Studio, Tableau, and IBM Watson Analytics will be used to develop the dashboard applications.

COURSE OBJECTIVES

Course Objectives	Program Learning Objectives					
	Communication Skills	Critical Thinking	Information Technology	Teamwork & Leadership	Global & Multicultural	Integrate Business Areas
<ul style="list-style-type: none"> Understand and communicate underlying fundamental concepts of various performance measurement matrices 	X	X	X	X	X	X
<ul style="list-style-type: none"> Understand and communicate common reporting functions available in an ERP environment and their roles in data visualization and corporate performance management 	X	X	X	X	X	X
<ul style="list-style-type: none"> An understanding of key components, tools, and techniques in a strategic management systems, including key performance indicators, performance dashboard, balanced scorecard, value based management, etc. 		X	X			X
<ul style="list-style-type: none"> Gain hands-on experience on common performance monitoring, dashboards, scorecard systems, and data visualization techniques in the Big Data context and in an ERP environment 			X			X
<ul style="list-style-type: none"> Understanding and communicate impact of visual and mobile analytics and in-memory computing on performance management systems in the Big Data context 	X	X	X			X

TEXTBOOK(S) AND MATERIALS FOR COURSE

- Required Textbook: *Performance Dashboards: Measuring, Monitoring, and Managing Your Business* by Wayne W. Eckerson (ISBN: 978-0-470-91842-5), 2nd ed, 2010, Wiley Publishing.
- Required Textbook: *ERP5210 Course Pack* (ISBN: 281000022688B), can only be purchased from the university bookstore, <https://www.thesandtstore.com> or 573-341-4705). Students **MUST** bring their textbooks when attending class.

GRADING POLICIES AND PROCEDURES:

Test 1 (in class concept test and case take home computer operation)	120 pts
Test 2 (in class concept test and case take home computer operation)	120 pts
Final Exam (in class concept test, case take home computer operation)	120 pts
Case Presentation (from three take home computer operations)	70 pts
Assignments (lab, quizzes, etc.)	570 pts

Grading Scale:

A: \geq 895 pts B: 795 – 894 pts C: 695 – 794 pts D: 595 – 694 pts F: $<$ 594 pts

General Grading Policies:

- **ALL ASSIGNMENTS AND TESTS ARE INDIVIDUAL WORKS UNLESS OTHERWISE SPECIFIED.**
- All assignments should be handed in at the beginning of class on the date announced. **NO LATE ASSIGNMENTS WILL BE ACCEPTED.**
- Please make every effort to make it to class on time. It is disruptive to the class to have members arriving late.
- 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 Canvas, etc.). You are also responsible for finding out what was covered in class and what announcements were made as well as obtaining handouts.
- The instructor will assign NO incompletes in lieu of a regular grade.

Exams, Tests, and Quizzes

- There will be two tests and one final examination. **All exam materials may become property of the instructor after completion.**
- 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.
- 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.
- All in-class quizzes and tests are closed books and closed notes unless otherwise specified.

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.

Discussion Board Participation

The sheer size of the SAP software limits the instructor from covering every aspect and screen that we will be using this semester. To help students to better understand course materials, to develop debugging skills, and to learn from each other, the instructor has enabled a discussion board on Canvas. **All technical support for SAP Labs and project will be provided through the Discussion Board on Canvas.** SAP system related questions will **NOT** be answered through e-mail by the instructor.

- a. If you do not understand a concept or encounter a problem/error that you do not know how to resolve yourself, you will need to post your questions on the discussion board. You are also expected to answer questions asked by your peers. Occasionally, the instructor will also post questions and answers.
- b. Before post a question on the Discussion Board, it is the student's responsibility to check and ensure no same question has been posted before.
- c. By the end of the semester, every student is expected to have asked and answered 10-15 questions. These discussions **might earn you extra credit toward your course grade.** Straight forward questions (for example – how do I get to this transaction, where can I find this button etc) will not count. Do not post questions just for the case of posting.

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 Vice Chancellor Shenethia Manuel. Contact her directly (manuel@mst.edu; (573) 341-4920; 113 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://titleix.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://grad.mst.edu/media/administrative/grad/documents/AcademicMisconductProcessOutline_Graduate.pdf
- <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 Monday, January 29, 2018.
- The last day to withdraw from this course without a “WD” showing on transcript is Monday, February 26, 2018
- The last day for dropping this course is Friday, April 13, 2018.

General guidelines for course assignments are provided below (adopted from Assignment Policies developed by Dr. Berry Flachsbart):

There are two kinds of homework assignments for this course: Individual homework and Group Homework. Each assignment is generally due one week after being assigned (assignment dates are in the tentative schedule -- the assignments and due dates are posted and updated in “HW Due Dates” on Canvas).

Individual Homework is to be done **individually** -- you may not receive help from any individual other than the Instructor, class peer assistants, and the Canvas Discussion Forum and you may not use or look at any material generated by someone else, either in the past or present (e.g. "files"). You may not use online sources that provide answers to specific questions. You may use online sources that provide general tutorial information, but **must cite them if you use them**. Of course, you may not give your homework to anyone else or assist others, either. Note **especially** that this means you may **NOT** work as a team or group on any Individual Homework or discuss the Individual Homework while you are working on Group Project Homework! Students will be asked to sign a statement verifying individual work. Homework without the signed statement will receive no credit.

Team assignment **IS** to be done by the assigned team members. -- but not to be shared or worked on outside of the designated team. The team is to follow the same prohibitions as listed in the section on individual homework. It is recommended that you do the Team Assignment first and discuss within your team the concepts learned while doing it. You will then individually be better prepared to tackle the Individual Homework. Submit one copy of the team assignment solution, with the names of all members of the team on it.

Homework is to be turned in at the start of the class period on the date due and NO LATE assignments will be accepted.

Reading Assignments

- R1. Chapter 1: Performance Management, In Case Studies in Performance Management: A Guide from the Experts (ISBN:0-471-77659-9), by Tony C. Adkins, pp. 1-19, Wiley Publishing, 2006.
- R2. Chapter 13: Financial Statement Analysis. In Financial Accounting, (ISBN-10: 0133427536 • ISBN-13: 9780133427530), by Harrison, Walter T, Jr. and Horngren, Charles, Thomas, William. pp. 685-716. 10th edition, Prentice Hall /Pearson Education (Upper Saddle River, NJ), 2015.
- R3. Chapter 1: What is Strategy and Strategic Management Process, In Strategic management and Competitive Advantage: Concepts and Cases (ISBN-10: 0133127400 • ISBN-13: 9780133127409), by Barney, Jay and Hesterly William, Prentice Hall, pp. 1 – 25. 5th edition, 2015,Pearson Education (Upper Saddle River, NJ)
- R4. Chapter 12: Performance Evaluation and the Balanced Scorecard. In Managerial Accounting (ISBN-13: 978-0138129712 ISBN-10: 0138129711), by Bamber, Linda S.; Braun, Karen; Harrison, Walter T. pp. 578-611.Prentice Hall /Pearson Education (Upper Saddle River, NJ), 2007.
- R5. The Balanced Scorecard: Measures that Drive Performance by Robert Kaplan and David Norton. Harvard Business Review, July 1, 2005
- R6. Chapter 3 Five Key Principles of CPM: Best Practices Model In Innovative Corporate Performance Management: Five Key Principles to Accelerate Results, by Bob Paladino, (ISBN: 0470627735), 1st ed., Wiley Publishing, pp. 35-47, 2010.
- R7. Chapter 15: The Analytical Organization, by R. Hightower, In Readings on Enterprise Resource Planning, pp. 193-208.
- R8. Chapter 17: Enhance Decision Making through Performance Dashboards and Scorecards, by B-R Lea, In Readings on Enterprise Resource Planning, pp. 233-271.

ERP 5210 Spring 2018 Course Schedule

This is a tentative lecture schedule. The instructor will make a reasonable effort to adhere to this schedule. However, some changes will be necessary 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.

Week of	Topic (Ch.: Textbook Chapter, R#: Reading Assignment number)
1 1/17, 1/19	Introduction to class R1: Performance Measurement Course Preparation and Review of ERP Basic Operations
2 1/22, 1/24, 1/26	Quiz 1 (1/24) R2: Financial Performance: Financial Statements and Financial Ratios Lab 1: Financial Statements Representation in an ERP Environment
3 1/29, 1/31, 2/2	R2: Financial Performance: Financial Statements and Financial Ratios Lab 2: Apple Inc. Financial Performance Dashboards & Storyboards (SAP Predictive Analytics)
4 2/5, 2/7, 2/9	Ch. 1 What are Performance Dashboards Lab 3: Apple Inc. Financial Performance Dashboard using Tableau
5 2/12, 2/14, 2/16	Ch. 6 Types of Performance Dashboards (pp. 187 -202) Lab 4: Visualization and Storyboard Design
6 2/19, 2/21, 2/23	Ch. 12 How to Design Effective Dashboard Displays Presentation 1 (2/19): Strategic, Tactical, and Operational Dashboards (Ch. 7, Ch. 8, Ch. 9) Test 1: Concept test 2/23, Take Home Computer Operations (2/21 – 3/2)
3 2/26, 2/28, 3/2	R3: What is Strategy and Strategic Management Process Lab 5: Dashboards connecting to In-memory Database SAP HANA
8 3/5, 3/7, 3/9	R4: Performance Evaluation and the Balanced Scorecard R5: The Balanced Scorecard: Measures that Drive Performance (Library database) Ch. 4 Business Intelligence & Performance Dashboard: Assess Your Technical Readiness Lab 6: IBM Watson Analytics Platform
9 3/12, 3/14, 3/16	Presentation 3 (3/12): Ch. 11 How to Create Effective Performance Metrics, Ch. 2 The Context for Performance Dashboard; Ch. 3 Assessing Your Organizational Readiness Business Information Warehouse (BW) Overview No class on March 16: Spring Recess
10 3/19, 3/21, 3/23	Lab 7 Query Design using SAP BW BEx Test 2: 3/23 (Written Test) & Case Take Home Computer Operation (3/21-4/2)
11 3/26, 3/28, 3/30	Spring Break (3/25 to 4/1)
12 4/2, 4/4, 4/6	Ch. 13 How to Architect a Performance Dashboard Mobile Analytical Dashboard App Development using SAP Design Studio Lab 8: Design Studio App 1: Customer Complain Tracking Dashboard
13 4/9, 4/11, 4/13	Mobile Analytical Dashboard App Integrated with In-Memory Data Warehouse Lab 9: Design Studio App 2
14 4/16, 4/18, 4/20	Cognitive Computing & Artificial Intelligence Predictive and Prescriptive Analytics: SAP Predictive Analytics & IBM Watson Analytics Presentation 4 (4/20): Ch. 5 How to Align Business & IT; Ch. 14 How to Deploy & Integrate Dashboards
15 4/23, 4/25, 4/27	The Art and Influence of Data Visualization (pp. 353-360) Presentation 5 (4/30): R6:Five Key Principle of CPPM; Ch. 15 How to Ensure Adoption and Drive Positive Change Final Exam Take Home Computer Operation (4/23 – 5/4)
16 4/30, 5/2, 5/4	R7: The Analytical Organization R8: Enhance Decision Making through Performance Dashboards & Scorecards (pp. 361-438) Course Review
17 5/7 – 5/11	Final Exam: Concept test: 10 am -12 pm, Thursday, May 10 (http://registrar.mst.edu/finalexams)