

QUALITY MANAGEMENT AND LEAN SIX SIGMA | LSCM 355

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Instructor Contact Information:

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Virtual Office Hours: By Appointment Only
Email for an appointment

Program/Department: Logistics and Supply Chain
Ball State University, Muncie

COURSE INFORMATION

Course Description: Focuses on concepts and tools for quality control and improvement in both manufacturing and service organizations. Topics include: total quality management, quality planning, quality cost principles, the use of statistical methods for quality control and improvement, Malcolm Baldrige National Quality Award criteria, and ISO standards.

Prerequisites: ECON 221 or MATH 181 or MATH 221 or MATH 320 or MATH 321 or equivalent.

Course Goals / Learning Outcomes: The purpose of this course is to create an understanding of Quality Management and Lean Six Sigma concepts. Upon completion of this course you will be able to:

- Demonstrate understanding of quality management concepts and techniques
- Demonstrate an understanding of the history and background of Lean Six Sigma
- Recognize Lean Six Sigma concepts
- Know how to participate in Lean Six Sigma projects that deliver meaningful results
- Be able to use several key Lean Six Sigma Tools
- Demonstrate an understanding of the DMAIC and DMADV problems solving methodologies

Course Modality / Structure: This course is delivered asynchronously online through Canvas. The course will be delivered in 10 weekly sections. Sections begin each Monday and end on Sunday at 11:59 pm with the exception of the final week which begins on Monday and ends on Friday at 11:59 pm. Students will be required to engage and complete assignments weekly. Weekly discussion boards and assignments will be used to determine attendance in the course.

Course Time Commitment: It is expected that students will spend approximately 2 hours of study time outside of class for every one hour in class. Since this is a 3-unit class, you should expect to study an average of 6 hours outside of class each week.

Lean Six Sigma Certification: This course provides students with the opportunity to earn a Lean Six Sigma Certification along with completion of the course. Earning the certification IS NOT a requirement to successfully pass the course. To earn the certification students must meet the following requirements:

- Pass the course with a score of 75% or higher
- Pass the Final Exam with a score of 75% or higher
- Pass the Final Presentation with a score of 75% or higher

The instructor will have final approval and authority over the certification. Any evidence of academic dishonesty may lead to denial of certification even if the requirements are met.

COURSE MATERIALS

Learn Six Sigma Using Minitab v.18: A Lean Six Sigma Black Belt Training Guide Featuring Examples from Minitab v.18

Michael Parker

Lean Sigma Corporation

I have provided a digital PDF version of the textbook in Canvas.

PACKBACK

Packback helps students become curious, critical thinkers with strong writing skills. Students who have used Packback said they became a more confident writer after using it. Packback has also been shown to help students earn better grades on their assignments and in the course. We will be using the Packback platform in this course for discussion.

Discussion Assignments:

Participation is a requirement for this course, and the Packback Questions platform will be used for online discussion about class topics. Packback Questions is an online community where you can be fearlessly curious and ask open-ended questions to build on top of what we are covering in class and relate topics to real-world applications. For a brief introduction to Packback Questions and why we are using it in class, watch this [video](#).

Discussion Assignment Requirements:

Your participation on Packback will count toward 21% of your overall course grade.

There will be a **Thursday at 11:59 pm** deadline for initial submissions and a **Sunday at 11:59 pm** deadline for responses. In order to receive full credit, you should submit the following:

- One question
- Two responses to peer questions.

NOTE THAT **PACKBACK ASSIGNMENTS CANNOT BE SUBMITTED LATE. THEY MUST BE SUBMITTED BY THE DUE DATE. PACKBACK AUTOMATICALLY GRADES THESE ASSIGNMENTS WHEN THEY ARE DUE.**

How to Register on Packback:

Note: Only access Packback through Canvas in order to ensure your grades sync properly

1. Click “Packback” within Canvas to access the community.
2. Follow the instructions on your screen to finish your registration.
3. In order for your grade to be visible in Canvas, make sure to only access Packback via Canvas.

How to Get Help from the Packback Team:

If you have any questions or concerns about Packback, please read their Help articles at help.packback.co. If you need more help, contact their customer support team directly at help@packback.co.

COURSE ASSIGNMENTS AND ASSESSMENTS

Course Assignments: Please see the below list of assignments and examinations for this course. Completion of these assignments and examinations will be used to determine attendance for each week. Discussion due dates include a due date for the initial discussion posting by the end of the day (11:59 pm) on Wednesday of the week indicated with responses due by the end of the day (11:59 pm) Sunday.

Assignment and Examination Schedule

Topics	Discussion	Assignments Due	Quizzes/Exams
1.1 Six Sigma Overview & 1.2 Six Sigma Fundamentals	Introduction Post	Process Map Matching	Syllabus Quiz
1.3 Six Sigma Projects	Packback Discussion 1		Quiz 1
1.4 Lean Fundamentals			Quiz 2
2.1 Process Definition	Packback Discussion 2		Quiz 3
2.2 Six Sigma Statistics		Graphical Analysis	
3.2 Inferential Statistics	Packback Discussion 3		Quiz 4
Exam 1			Exam 1
4.1 Simple Linear Regression			Quiz 5
4.2 Multiple Regression Analysis	Packback Discussion 4		Quiz 6
5.1 Lean Controls		5S Game	
5.2 Statistical Process Control	Packback Discussion 5		Quiz 7
5.3 Six Sigma Control Plans			Quiz 8
Lean Six Sigma & Other Methodologies	Packback Discussion 6		Quiz 9
Review		Study for Final Exam & Work on Presentation	
Final Presentations		Final Presentation	
FINAL EXAM			FINAL EXAM

Note that this is a tentative schedule and adjustments may be made as needed by the instructor.

COURSE STATEMENTS AND POLICIES

Participation Policy

- This course is designed with weekly activities, discussion, and other forms of regular collaboration and communication.
- It is recommended that you log into your course 3 to 4 times a week and check your official Ball State email account daily to view announcements and prepare for class.
- Complete all assignments, quizzes, tests, and any other activities by the stated due dates.

Feedback Policy

- I will respond to email from your official Ball State email address within 24 hours during week days (Monday-Friday) and within 48 hours on the weekend.
- I will read every discussion post but I will not always personally comment on posts.
- I will grade your quizzes, assignments, and discussions no later than within 5 business days of submission.
- Contact me directly if you have questions or concerns about your performance in class.

Late Assignment Policy

- All assignments are due by 11:59 pm EST/EDT time on the due dates indicated.
- Assignments posted after the indicated due dates will be subject to a decreased percentage for each day past the due date.
 - Each day late will reduce the grade by 5%
 - A day will count from midnight after the assignment is due through 11:59 pm of that day. It does not matter if the assignment is turned in within minutes or hours after the deadline, the deduction will be the same for that day. For example, if an assignment is due at 11:59 pm on Sunday and it is turned in at 12:01 am on Monday, it will have a 5% deduction. If it is turned in at 11:45 pm on Monday it would still have the same 5% deduction. The deduction would increase at midnight each following day.
 - **THIS DOES NOT APPLY TO PACKBACK ASSIGNMENTS. PACKBACK ASSIGNMENTS MUST BE SUBMITTED ON TIME FOR CREDIT.**
- Internet connectivity and technical issues may occur and impede you from turning in work on time. Turn in work early and often, and set up a back-up plan, such as visiting a local library or borrowing a peer's computer.
- Canvas will not accept assignments for grading after 11:59 pm on the final day of class.

Assignment Submission Policy

- All written assignments should be submitted as Word documents with extensions of .doc or .docx unless otherwise indicated in the assignment description.
- Assignments, unless otherwise indicated, should be submitted using the assignment link in the module.

Grading Policy

It is my policy that appropriate evaluation of your academic performance is an integral part of your learning experience. In the absence of mistake, fraud, bad faith or incompetence, I will be the key decision-maker on the assignment of grades. For information concerning grade appeals, [consult the Ball State website](#).

Fair Grading

In an effort to ensure that grading is done without bias and that everyone in this course has an equal opportunity, I employ fair grading practices which include a minimum score for all work that is completed and turned in. No assignment that is completed and turned in will receive a score of less than 50%.

Grade Distribution

Assignment	Possible Points	% of Grade
10 Quizzes	190	19.00%
3 Homework Assignments	150	15.00%
7 Discussion Boards	210	21.00%
Midterm Exam	150	15.00%
Final Exam	200	20.00%
Project/Case Study	100	10.00%
Total Possible Points	1000	100.00%

Final Grade	From	To	Final Grade	From	To
A	930	1000	C	730	759
A-	900	929	C-	700	729
B+	860	899	D+	660	699
B	830	859	D	630	659
B-	800	829	D-	600	629
C+	760	799	F	< 600	

UNIVERSITY POLICIES

Diversity Statement

“Ball State University aspires to attract and retain a diverse faculty, staff, and student body. We are committed to ensuring that all members of the community are welcome, through valuing the various experiences and worldviews represented at Ball State and among those we serve. We promote a culture of respect and civil discourse as expressed in our <https://www.bsu.edu/about/beneficence> and university resources <https://www.bsu.edu/campuslife/multicultural-center/resources>”

If you need course adaptations or accommodations because of a disability, please contact Disability Services as soon as possible. Ball State's Disability Services office coordinates services for students with disabilities; documentation of a disability needs to be on file in that office before any accommodations can be provided. Disability Services can be contacted at 765-285-5293 or dsd@bsu.edu.

Attendance Policies

Attendance in this course will be established through the submission of assignments each week. Logging into the course is not sufficient, by itself, to establish attendance for the week. You must participate in the class by submitting at least one of the assignments or, if the instructor schedules a meet session, being present for the scheduled session.

Students are expected to review course syllabi regarding absence guidelines and follow those guidelines. The University has a number of specific policies regarding student absences that are housed within different areas. [Explore Ball State course attendance policies.](#)

Covid-19

I encourage you to become familiar with the [Covid-19 Plan for Students](#), where you can find information regarding Covid-19 vaccinations, the University face mask policy, and requests for disability accommodations.

Ball State Academic Ethics Policy

Honesty, trust, and personal responsibility are fundamental attributes of the university community. Academic dishonesty and other forms of academic misconduct threaten the foundation of an institution dedicated to the pursuit of knowledge and will not be tolerated. To maintain its credibility and reputation, and to equitably assign evaluations of scholastic and creative performance, Ball State University is committed to maintaining a climate that upholds and values the highest standards of academic integrity. Visit the complete [Student Academic Ethics Policy](#).

Plagiarism Policy

Plagiarism is not acceptable, unless otherwise indicated for all assignments, you must work independently by yourself. Sharing of files is not permitted for any reason.

Potential Violations

Examples of academic integrity violations include but are not limited to:

- Working with another person on any assignment other than authorized group projects.
- Sharing or allowing others to access your files, whether done with permission or not.
- Use or possession of a file created by someone else.
- Reusing work from another semester, course, or section.
- Fraudulent submission of work.
- Using unauthorized materials during Exams.
- Impersonating someone else or having them impersonate you.
- Making fraudulent or dishonest statements regarding your work.
- Soliciting others to complete work for you.
- Posting course files and resources on study or content sharing websites.

[The Plagiarism Tutorial from UNC Libraries](#) provides you with a great foundation in Academic Integrity.

Plagiarism Detection

The campus subscribes to SimCheck, a plagiarism prevention service, through Canvas. You may need to submit written assignments to SimCheck. Student work will be used for plagiarism detection and for no other purpose. The student may indicate in writing to the instructor that he/she refuses to participate in the plagiarism detection process, in which case the instructor can use other electronic means to verify the originality of their work.

Proctoring

This course will require the use of the Respondus LockDown Browser and Monitor for online exams. [Watch this short video](#) to get a basic understanding of LockDown Browser and the optional webcam feature (which may be required for some exams.) Instructions for obtaining the software can be found in our course.

Use of AI for Assignments

It is strictly forbidden to use chatbots or any other automated software to complete university writing assignments except under the conditions explained in class by your instructor.

Violation of this policy may result in disciplinary action, up to and including revocation of credit for the assignment, and other sanctions as described for plagiarism in the university's academic honesty policy.

<https://www.bsu.edu/about/administrativeoffices/vice-provost/student-services/academic-integrity>

CANVAS AND STUDENT PRIVACY

Canvas Accessibility

Canvas provides a user experience that is easy, simple, and intuitive. Special attention has been paid to making Canvas screen-readable. The Rich Content Editor encourages users to create accessible content pages (i.e. text

formatting is accomplished using styles). Canvas is designed to allow limited customization of colors and schemes to be accessible for all users. The National Federation of the Blind granted Canvas the Gold Level Web Certification in 2010.

Find more information by visiting the [Canvas Voluntary Product Accessibility Template \(VPAT\)](#).

FERPA and Privacy

As a student, your educational records are considered confidential. Under FERPA (Family Educational Rights and Privacy Act), your records are confidential and protected. Under most circumstances, your records will not be released without your written and signed consent. However, some directory information may be released to third parties without your prior consent unless a written request to restrict this is on file. You can learn more about student rights to privacy by reading [Ball State's FERPA and Privacy and Protection](#).

Video Conferencing Recording

In this class, software may be used to record live class discussions. As a student in this class, your participation in live class discussions may be recorded. These recordings typically will be made available only to students enrolled in the class, to assist those who cannot attend the live session or to serve as a resource for those who would like to review content that was presented. Students who prefer to participate via audio only will be allowed to disable their video camera so only audio will be captured. Students who prefer to listen only must disable their audio capability and visual camera. If you have concerns, please discuss these options with me.

ACADEMIC SUPPORT SERVICES

The Writing Center

All writers improve with practice and feedback, so as a student in this course, you are encouraged to use the Writing Center (in Robert Bell 295, Bracken Library, or online) to get additional feedback on your writing. To schedule a free appointment to discuss your writing, go to www.bsu.edu/writingcenter. Online and in-person appointments are available seven days a week; however, plan ahead because appointments book quickly!

The Learning Center

The Learning Center offers free Tutoring and Academic Coaching for many courses at Ball State. Students can make appointments for online (Zoom) or in-person (NQ 350) appointments. All students are required to wear masks in the Learning Center. To make an appointment, visit my.bsu.edu and click on “TutorTrac” in the Additional Tools section, or just go directly to <https://ballstate.go-redrock.com>.

Testing accommodations for students with disabilities are available for students who have received the appropriate documentation from Disability Services. Tests may be administered in the Learning Center.

Supplemental Instruction is available in select courses. If you have an SI leader for your course, that person will provide students with information the first week of school regarding weekly study sessions. For more information about all of our programming, visit bsu.edu/learningcenter or call 765-285-1006. Follow us on Instagram: BallStateLC.

SUBJECT TO CHANGE STATEMENT

This syllabus and schedule are subject to change in the event of extenuating circumstances.

Tentative Course Schedule

Fall Terms

Module	Topics
1	1.1 Six Sigma Overview & 1.2 Six Sigma Fundamentals
2	1.3 Six Sigma Projects
3	1.4 Lean Fundamentals
4	2.1 Process Definition
5	2.2 Six Sigma Statistics
6	3.2 Inferential Statistics
7	Exam 1
8	4.1 Simple Linear Regression
9	4.2 Multiple Regression Analysis
10	5.1 Lean Controls
11	5.2 Statistical Process Control
12	5.3 Six Sigma Control Plans
13	Lean Six Sigma & Other Methodologies
14	Review
15	BREAK
16	Final Presentations
Final Exam Week	FINAL EXAM

Reminder: This schedule is subject to change.

Spring Terms

Module	Topics
1	1.1 Six Sigma Overview & 1.2 Six Sigma Fundamentals
2	1.3 Six Sigma Projects
3	1.4 Lean Fundamentals
4	2.1 Process Definition
5	2.2 Six Sigma Statistics
6	3.2 Inferential Statistics
7	Exam 1
8	4.1 Simple Linear Regression
9	4.2 Multiple Regression Analysis
10	SPRING BREAK
11	5.1 Lean Controls
12	5.2 Statistical Process Control
13	5.3 Six Sigma Control Plans
14	Lean Six Sigma & Other Methodologies
15	Review
16	Final Presentations
Final Exam Week	FINAL EXAM