University of North Texas
G. Brint Ryan College of Business
Information Technology and Decision Sciences
DSCI 4700 Business Process Analytics
AI-Enhanced Collaborative Learning Capstone
Dates are Subject to Change based on the schedule of guest speakers

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Course Information
Course: DSCI 4700.001 – Business Process Analytics
Semester: Spring 2026
Meeting Time: Thursday, 2:00 p.m. – 4:50 p.m.
Location: BLB Room 170
Course Materials: Canvas at https://unt.instructure.com

Instructor Contact
Instructor: Dr. Victor Prybutok, CQE, CQA, CMQ/OE, PSTAT®
Phone: 940-565-4767
Office: 319C
Office Hours: After class and upon request
Email: Use Canvas Inbox (Include "DSCI 4700" in subject line)
Response Time: ASAP but at least 24-48 hours during weekdays; email by Friday morning for weekend responses

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Required Texts and Materials – Likely, you can find inexpensive used copies, but for your convenience, our bookstore will have all the materials.

Primary Text: *An Introduction to Six Sigma & Process Improvement (2nd edition)* by Evans/Lindsay (2015), Cengage Learning
Supplementary References:

- *The Six Sigma Way: Team Fieldbook* by Pande, Neuman & Cavanagh, McGraw Hill, 2002
- *Python Data Analytics* by Fabio Nelli, Apress (Less critical but available free through UNT Library)

Technology Requirements:

- Personal computer with reliable internet access
- Webcam, speakers, microphone
- Microsoft Office Suite
- UNT Zoom Web Conferencing Tool
- Access to AI tools (ChatGPT, Claude, or similar LLMs)

Course Prerequisites
Should only be taken during your graduating semester
Prerequisites: BCIS 4660 or ACCT 4100 or LSCM 3960 or OPSM 3830; 2.7 UNT GPA (2.7 transfer GPA if no UNT courses taken); grade of C or better in all previous DSCI courses.

Course Description

From Catalog: Study of the analytics that underlie the process of decision making and the information requirements of decisions; decision support tool selection, process improvement, and applications development.

More detail: This capstone course prepares students to work in AI-enhanced quality control environments where human expertise and artificial intelligence collaborate to solve complex business problems. Students work in multidisciplinary teams alongside AI tools (such as ChatGPT, Claude, or other LLMs) as collaborative partners to identify, analyze, and improve real-world business processes.

The course integrates three established pedagogical frameworks: Computer-Supported Collaborative Learning (CSCL), Human-AI Shared Regulation in Learning (HASRL), and AI-Enhanced Team-Based Learning. Students will master the balance between leveraging AI capabilities and maintaining human oversight, ethical reasoning, and professional judgment.

Through real-world iterative projects, teams will apply Six Sigma methodologies enhanced by AI-supported analytics, develop process improvement recommendations, and create implementation strategies that reflect current industry practices, where 78% of organizations now integrate AI into core operations. Emphasis is placed on transparent AI collaboration, ethical decision-making, and the development of human-AI partnership skills essential for modern quality control professionals.

Pedagogical Framework Integration

This course operates on three interconnected learning theories:

1. **Computer-Supported Collaborative Learning (CSCL)**: Teams use digital platforms and AI tools to co-construct knowledge about quality control processes. AI serves as both a collaborative partner and a learning mediator.
2. **Human-AI Shared Regulation in Learning (HASRL)**: Students develop metacognitive awareness of when to rely on AI support, when to apply human judgment, and how to synthesize both perspectives for optimal outcomes.
3. **AI-Enhanced Team-Based Learning (TBL)**: Modified TBL structure where teams progress through AI-supported preparation, AI-enhanced readiness assessment, and AI-collaborative application phases.

Assessment Alignment: Each evaluation component measures competencies across all three frameworks, ensuring that students develop both technical skills and collaborative intelligence necessary for modern quality control and broader leadership.

Learning Outcomes

AI Collaboration Competencies

By completing this capstone course, students will demonstrate competency in:

- Designing and implementing transparent AI collaboration protocols for quality control projects
- Applying the AI Assessment Scale (AIAS) to evaluate the depth and appropriateness of AI integration
- Documenting and reflecting on human-AI decision-making processes using the HASRL framework

- Distinguishing between AI-generated insights and human-validated conclusions in professional contexts

Professional Quality Control Skills

- Leading cross-functional teams in identifying and solving complex process improvement challenges
- Applying Six Sigma methodologies enhanced by AI-supported data analysis and visualization
- Developing implementation strategies that integrate traditional quality control with AI-enhanced monitoring
- Communicating findings and recommendations to diverse stakeholders, including AI collaboration methodologies

Ethical and Critical Thinking

- Evaluating the ethical implications of AI use in quality control decisions
- Demonstrating responsible AI usage with appropriate attribution, validation, and transparency
- Assessing the limitations and biases of both human judgment and AI-generated recommendations
- Designing quality control processes that maintain human oversight while leveraging AI capabilities

Use of Generative AI tools: This course recognizes that generative AI tools (such as ChatGPT, Gemini, Bard, Copilot, etc.) are becoming integral to modern business and professional life. You are required and encouraged to use these tools to aid your projects because it is the intent of this course to help prepare you for your future work environment. However, you must do so in a manner that upholds academic integrity and professional ethics.

The following principles should guide your use of these tools:

1. AI as an Aid, Not an Author: AI can be a powerful tool for brainstorming, outlining, summarizing information, and refining your writing. However, the final content of all presentations and reports must be your work, reflecting your analysis and judgment. Submitting AI-generated content as your own without significant revision and original thought not only violates the university's academic integrity policy but also deprives you of the intended learning experience this course provides.
2. Verify Everything: AI models can produce inaccurate, biased, or fabricated information (often called "hallucinations"). You are fully responsible for the accuracy of all facts, data, and claims in your submitted work. All information obtained from an AI tool must be independently verified using traditional, credible sources (e.g., academic journals, reputable news outlets, industry reports).
3. Paraphrase and Cite: Do not copy and paste text directly from an AI tool because these tools take text from other sources, so rewriting will avoid plagiarism. Use the output as a starting point, then rephrase and integrate the ideas into your writing. You are required to cite the AI tool in your work just like any other source.
4. Full Transparency and Documentation: For every assignment where you use an AI tool, you are required to submit an appendix titled "AI Acknowledgment." This appendix must detail:
    - The AI Tool(s) Used: The name and version of the specific tool(s) you used (e.g., OpenAI's ChatGPT 4.0, Google's Gemini, Microsoft Copilot).

- The Purpose: A brief explanation of how you used the tool (e.g., "to generate an outline for the presentation," "to find potential counterarguments for our market analysis," or "to revise the introduction for clarity").
- The Prompt: The exact text of the prompt(s) you used. This documentation will allow me to understand your process.
- The Revisions: Briefly describe how you edited and verified the AI's output to make it your own.
- Failure to adhere to this policy is academic misconduct and will impact your grade. If you have questions about the appropriate use of AI work, err on the side of over-documenting how AI was used.

Assessment Structure

Assignment	Weight	See Rubric	Deliverables
Class Participation and Attendance	10%	Assignment 1	16 class sessions.
Individual Homework/Case Studies	15%	Assignment 2	5 individual project write-ups (1.5-3 pages each, double-spaced) describing student contributions, Six Sigma applications, AI integration, individual comments about team experience, and DMAIC methodology. Due: Weeks 3, 5, 7, 13, 15
Team-Based Activities and Discussions	15%	Assignment 3	In-class team engagement and 3-minute project updates in 10 weeks (Weeks 1, 2, 3, 4, 5, 7, 10, 13, 14, 15); each team presents 2-3 times
Mid-term Team Presentation & Report	20%	Assignment 4	1 team presentation (12-15 min, Week 6); 1 written report (5-10 pages, Week 6)
Final Team Project Presentation & Report	20%	Assignment 5	1 team presentation (20 min, Weeks 16-17); 1 comprehensive report (10-15 pages, including a 2-page executive summary in the front, Week 14)
Individual AI Collaboration Portfolio	20%	Assignment 6	15 weekly AI logs (Weeks 1-8, 10-16; no log during Spring Break Week 9 or final day Week 17). Submit logs grouped with reflection essays: Essay 1 (Week 3) includes logs 1-3; Essay 2 (Week 10) includes logs 4-9; Essay 3 (Week 15) includes logs 10-15; 3 reflection essays (1.5-3 pages each, double-spaced) (Weeks 3, 10, 15); 1 professional development plan (Week 15)
Total	**100%**		

Grading Scale

- A: 90-100%
- B: 80-89%
- C: 70-79%
- D: 60-69%
- F: Below 60%

Note: All assessments include evaluation of appropriate AI integration, ethical considerations, and the effectiveness of human-AI collaboration.

Professional Engagement Expectations

This course treats you as emerging professionals. Regular, timely participation supports your team's progress and professional development. Each week, class sessions include three components: (1) a brief chapter overview by the instructor, (2) project discussion involving all teams, and (3) rotating presentations where 2-3 teams share detailed progress updates. Additionally, all teams submit a brief weekly progress document summarizing their current status and deliverables. This structure ensures consistent accountability while reducing the stress of formal presentations. Professional engagement includes:

- Active participation in AI collaboration exercises
- Constructive peer feedback on AI integration strategies
- Demonstrated growth in human-AI partnership skills
- Punctual attendance and preparation for team workshops
- Participation in weekly project discussions, rotating team presentations, and timely submission of weekly progress documents

Attendance Policy: Attendance is essential for team collaboration and professional development. More than 2 unexcused absences may significantly impact your Professional Engagement grade (15% of total). Students with attendance concerns should communicate early so that we can develop an accommodation strategy.

Team Project Framework

AI-Enhanced Collaborative Project Structure

Teams will integrate AI tools into their process analysis and project development. All projects must:

- Include a documented AI use protocol established in Week 2
- Analyze data using both AI-assisted and traditional validation methods
- Document all AI-human interactions and lessons learned throughout the semester
- Present final results with discussion of ethical and interpretive challenges encountered

Team Formation and Management

- Teams of about 5 students with appointed or elected team leaders
- All team members must contribute as fully functional team members
- Teams will establish AI collaboration charters defining roles, responsibilities, and AI integration protocols

Project Requirements

- Selection of real-world quality control problem suitable for AI-enhanced analysis
- Application of Six Sigma DMAIC methodology with AI support

- Peer-reviewed literature review enhanced by AI research capabilities
- 10-page double-spaced report plus comprehensive presentation
- Documentation of AI collaboration patterns and effectiveness

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Team Performance and AI Collaboration Assessment

Team Performance Coaching

If challenges arise in team dynamics or AI collaboration effectiveness, we will initiate a professional development plan. This may include individual coaching, workload redistribution, or specialized learning plans, not immediate penalties. Our goal is to support growth and restore effective collaboration.

Peer Evaluation Process

All students complete final peer evaluations using a 1-5 scale, assessing:

- Traditional teamwork contributions
- AI collaboration facilitation skills
- Ethical AI use demonstration
- Professional communication and engagement

Performance Standards:

- Team members averaging 4+ receive no penalty
- Team members averaging 2-3.9 receive 25-50% grade penalty
- Team members averaging below 2 receive 50-100% grade penalty

Students removed from teams will complete the remaining deliverables independently. This may impact team-based assessment opportunities, but individual work quality will be evaluated on its merits.

AI Integration and Ethics Framework

AI as Collaborative Team Member

AI is not just permitted; it is an essential collaborative partner in this course. Teams will use AI to enhance data analytics, quality control insights, and decision-making processes while maintaining human oversight and professional judgment.

Ethical AI Collaboration Standards

Teams must demonstrate:

- **Transparency**: All AI interactions documented with a rationale for AI tool selection and usage patterns
- **Validation**: Human verification of AI-generated insights using domain expertise and alternative methods
- **Attribution**: Clear identification of AI contributions in all deliverables with appropriate citation
- **Bias Awareness**: Regular assessment of potential AI biases and implementation of mitigation strategies
- **Human Agency**: Maintenance of human decision-making authority in all critical quality control decisions
- **Professional Responsibility**: Commitment to using AI to enhance rather than replace human professional judgment

AI Documentation Requirements

Students must maintain:

- Weekly logs of AI tool usage with specific prompts and outputs
- Reflection on AI collaboration effectiveness and lessons learned
- Documentation of how AI insights were validated or modified by human expertise
- Ethical consideration analyses for major AI-assisted decisions

Violation of AI ethics standards will result in penalties equivalent to those for academic dishonesty.

Course Policies

Technology Integration Policy

Laptops and mobile devices are essential tools for this AI-collaborative course. During team workshops and AI integration activities, the use of technology is required and encouraged. During instructor presentations, technology should be used purposefully to support learning (note-taking, real-time research, and AI assistance for understanding complex concepts). Recreational use during instruction is unprofessional and disrespectful to the instructor and classmates.

Academic Integrity with AI Integration

This course maintains the highest standards of academic integrity while embracing AI collaboration:

1. **Attribution Principle**: You take full responsibility for AI-generated materials as if you produced them yourself; ideas must be attributed, and facts must be verified.
2. **Surpass AI Standard**: AI-generated submissions alone cannot achieve passing grades. Students must demonstrate value-added human insight, analysis, and professional judgment that surpasses AI capabilities.
3. **Documentation Requirement**: A portion of your grade evaluates your documentation of AI use throughout the course. Undocumented AI use will result in grade penalties.

Assessment and Submission Policies

- No make-ups for missed work without a documented emergency
- Assignments due as specified and no late submissions accepted
- All written work: 2.0 line spacing, 12-point Times New Roman font, professional cover page
- Use APA style for citations and references
- Turnitin is used to help students review work and improve writing quality

Acceptable Student Behavior

Student behavior that interferes with an instructor's ability to conduct a class or other students' opportunity to learn is unacceptable and disruptive and will not be tolerated in any instructional forum at UNT. Students engaging in unacceptable behavior will be directed to leave the classroom and the instructor may refer the student to the Dean of Students to consider whether the student's conduct violated the Code of Student Conduct. The University's expectations for student conduct apply to all instructional forums, including University and electronic classroom, labs, discussion groups, field trips, etc. The Code of Student Conduct can be found at deanofstudents.unt.edu/conduct.

Course Schedule

Subject to change based on guest speaker availability and team progress. Class sessions follow a workshop format: the instructor provides a brief chapter overview, followed by project discussion involving all teams and rotating presentations where 2-3 teams share detailed updates each week. With 10-11 teams, each team will present approximately 3-4 times during the semester. All teams submit a brief weekly progress document summarizing their current status, challenges, and next steps—ensuring consistent accountability even during weeks when not presenting.

Week	Date	Focus & Activities	AI Integration	Deliverables
1	**1/15**	**Course Introduction & AI Team Formation** Introduction to capstone course format and expectations, project selection process (local organizations, your own company, campus groups/units, or instructor-provided projects), team formation, and AI collaborative tool selection. Each team will select their AI collaborative partner (ChatGPT, Claude, or other AI of choice) to work with throughout the semester	Hands-on exploration of ChatGPT, Claude, and other AI tools for quality control applications	3-minute team update3-minute team update (Form teams), AI capability assessment
2	**1/22**	**AI Team Integration Workshop** Establish team AI collaboration agreements, practice prompt engineering for quality control **Presentation & Discussion**: Chapter 1 - Foundations of Six Sigma and Project Relevance **Supplementary**: Skim Team Fieldbook Chapters 1-3 (Introduction to DMAIC framework)	Team AI collaboration charter development, problem identification with AI assistance	**Due**: 3-minute team update
3	**1/29**	**Problem Scoping with AI Support** Literature review enhancement using AI tools, dataset identification **Presentation & Discussion**: Chapter 2 - Principles of Six Sigma and Project Relevance	AI-assisted literature search and synthesis, problem statement refinement	**Due**: Individual HW1 3-minute team update Reflection essay 1
4	**2/5**	**Project Definition & AI-Enhanced** **Presentation & Discussion**: Chapter 3 - Project Organization, Selection, Definition and Project Relevance **Supplementary**: Skim Team Fieldbook Chapters 4-6 (Define Phase) **Guest Speaker** (Date TBD): Industry AI Implementation in Quality Control - Discussion of project applications and post-graduation work environment	Use AI for project scoping and metric definitions, validate with human expertise	**Due**: 3-minute team update

Week	Date	Focus & Activities	AI Integration	Deliverables
5	2/12	**Team Workshop: Project Proposal Development** Collaborative project proposal creation with AI assistance **Milestone 1: Project Proposal**	AI-supported proposal writing, human validation and enhancement	**Due**: Project Proposal (preliminary) Individual HW2 3-minute team update
6	2/19	**Presentations** **Presentation & Discussion**: Chapter 4 - Process Measurement and Project Relevance **Guest Speaker** (Date TBD): AI-Enhanced Six Sigma in Practice - Relevance to team projects and career preparation	Present AI-enhanced project proposals, peer feedback on AI integration strategies	**Due**: Mid-term Team Presentation & Report
7	2/26	**AI-Enhanced Process Analysis** **Presentation & Discussion**: Chapter 5 - Process Analysis and Project Relevance **Supplementary**: Skim Team Fieldbook Chapters 7-10 (Measure Phase)	Conduct root cause analysis using AI, validate findings with traditional methods	**Due**: Individual HW3 3-minute team update
8	3/5	**Milestone 2: Data Collection & AI Analysis** **Presentation & Discussion**: Chapter 6 - Process Improvement and Project Relevance **Supplementary**: Skim Team Fieldbook Chapters 11-14 (Analyze Phase)	Present preliminary data analysis with AI assistance, demonstrate validation methods	**Due**: Data Analysis Presentation
9	3/12	**Spring Break**	Continue data collection and AI analysis	Individual AI reflection essays
10	3/19	**Team Workshop: Advanced AI Integration** **Presentation & Discussion**: Chapter 7 - Process Control and Project Relevance **Guest Speaker** (Date TBD): Continuous Improvement and AI Integration - Team project coaching and career insights	Advanced AI techniques for process improvement, ethical considerations workshop	**Due**: Milestone Progress Presentation 3-minute team update Reflection essay 2
11	3/26	**Milestone 3: Solution Development** **Presentation & Discussion**: Chapter 8 - Design for Six Sigma and Project Relevance **Supplementary**: Skim Team Fieldbook Chapters 15-18 (Improve Phase)	AI-assisted solution generation, human evaluation and refinement	**Due**: Solution Development Presentation
12	4/2	**Implementation Planning with AI** **Presentation & Discussion**: Chapter 9 - Implementing Six Sigma and Project Relevance	Develop AI-enhanced implementation strategies, risk	**Due**: Implementation Plan Presentation

Week	Date	Focus & Activities	AI Integration	Deliverables
		Supplementary: Skim Team Fieldbook Chapters 19-21 (Control Phase) **Guest Speaker** (Date TBD): Quality Management Leadership in AI-Enhanced Environments - Project implications and professional development	assessment with AI support	
13	**4/9**	**Individual Team Consultations** Small team appointments with instructor	Final AI integration review, troubleshooting AI collaboration challenges	AI Portfolio progress check Individual HW4 3-minute team update
14	**4/16**	**Team Workshop: Final Report Preparation** Final report completion with AI assistance	Synthesis of AI collaboration learnings, final validation of AI-generated content	**Due**: Final Team Project Report 3-minute team update
15	**4/23**	**AI Collaboration Reflection & Course Synthesis:** Reflect on team-AI dynamics and learnings	Portfolio completion, peer evaluation of AI collaboration effectiveness	**Due**: AI Collaboration Portfolio Individual HW5 3-minute team update Reflection essay 3 Professional development plan
16	**4/30**	**Final Team Project Presentations - Session 1**	Demonstrate AI-human collaboration in final presentations	**Due**: Final Presentations & Report (Group 1)
17	**5/7**	**Final Team Project Presentations - Session 2**	Demonstrate AI-human collaboration in final presentations	**Due**: Final Presentations & Report (Group 2), Peer Evaluations

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Student Perceptions of Teaching

Student feedback is important and an essential part of participation in this course. The student evaluation of instruction is a requirement for all organized classes at UNT. The survey will be made available during weeks 13 and 14 of the long semesters to allow students to evaluate how this course is taught. Students will receive an email from "UNT SPOT Course Evaluations via IASystem Notification" (no-reply@iasystem.org) with the survey link. Students should look for the email in their UNT email inbox. Simply click on the link and complete the survey. Once students complete the survey, they will receive a confirmation email that the survey has been submitted. For additional information, please visit the spot website at www.spot.unt.edu or email spot@unt.edu.

Emergency Procedures

Severe Weather

Seek shelter in designated areas: Basement rooms 055, 077, 090, and restrooms; First floor rooms 170, 155, and restrooms.

Fire/Bomb Threat

Evacuate immediately to south side of Crumley Hall, grassy area west of parking lot 24. Persons with mobility impairments should move to designated refuge areas.

Academic Ethics and Professional Standards

The UNT College of Business and ITDS Department expect ethical behavior at all times. Academic integrity is essential and will be enforced through:

- **Comprehensive academic integrity education** integrated with AI collaboration training
- **Clear documentation standards** for all AI-assisted work
- **Collaborative learning emphasis** that distinguishes between appropriate AI assistance and academic dishonesty
- **Professional development focus** preparing students for ethical AI use in workplace environments

According to UNT Policy 18.1.16, Student Academic Integrity, academic dishonesty occurs when students engage in behaviors including, but not limited to, cheating, fabrication, facilitating academic dishonesty, forgery, plagiarism, and sabotage. A finding of academic dishonesty may result in academic penalties or sanctions ranging from admonition to expulsion from the University. Violations of AI documentation requirements or undisclosed AI use will be treated as academic dishonesty and may result in course failure and referral to appropriate university offices.

Students must read and understand UNT's Student Standards of Academic Integrity policy. Academic dishonesty will result in course failure and referral to appropriate university offices.

AI-Specific Academic Integrity Guidelines

- All AI contributions must be documented and attributed
- Teams share responsibility for ethical AI use
- Validation of AI outputs is required for all critical decisions
- Plagiarism includes undocumented use of AI-generated content

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University Support and Accommodation

UNT makes reasonable academic accommodations for students with disabilities. Students seeking accommodation must register with the Office of Disability Accommodation (ODA) to verify their eligibility. If a disability is verified, the ODA will provide a student with an accommodation letter to be delivered to faculty to begin a private discussion regarding one's specific course needs. Students may request accommodations at any time, however, ODA notices of accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Students must obtain a new letter of accommodation for every semester and meet with each faculty member before implementation in each class. For additional information, see the ODA website at disability.unt.edu

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This syllabus represents a commitment to innovative, ethical, and professionally relevant education. Together, we will explore the future of human-AI collaboration in quality control while maintaining the highest standards of academic excellence and professional preparation.

Course structure and deadlines subject to change to accommodate guest speaker availability and optimize learning outcomes.

Appendix: Assignment Grading Rubrics

Assignment 1: Class Attendance (10%)

Purpose: You should be attending and participating with your teammate in the class.

Criteria	Excellent (9-10 pts)	Good (7-8 pts)	Satisfactory (5-6 pts)	Needs Improvement (0-4 pts)
Attendance	0-1 absences; punctual	2 absences; mostly punctual	3 absences; occasionally late	4+ absences; frequently late
Engagement	Consistently contributes insightful comments; actively listens	Regularly participates; provides relevant contributions	Occasionally participates; contributions are basic	Rarely participates; appears disengaged
Preparation	Always prepared; references readings and materials	Usually prepared; demonstrates knowledge of content	Sometimes prepared; limited evidence of reading	Rarely prepared; no evidence of preparation

Grading Notes:

- Excused absences (documented illness, university events) will not count against attendance
- Students should notify the instructor in advance of anticipated absences

Assignment 2: Individual Homework/Case Studies (15%)

Purpose: These assignments assess individual understanding of Six Sigma concepts and AI-enhanced analytical approaches through practical problem-solving.

Criteria (Weight)	Excellent (90-100%)	Satisfactory (70-89%)	Needs Improvement (0-69%)
Technical Accuracy (40%)	All calculations correct; appropriate methods	Mostly correct with minor errors; appropriate	Significant errors; inappropriate methods; limited understanding

Criteria (Weight)	Excellent (90-100%)	Satisfactory (70-89%)	Needs Improvement (0-69%)
	applied; demonstrates mastery	methods; demonstrates understanding	
AI Integration (30%)	AI use documented; validation shown; demonstrates appropriate balance of AI/human judgment	AI use documented; some validation; generally appropriate integration	Poor/no AI documentation; no validation; inappropriate reliance on AI
Analysis & Insights (20%)	Thoughtful interpretation; connections to theory; actionable recommendations	Adequate interpretation; some connections; basic recommendations	Superficial analysis; no connections; weak or no recommendations
Presentation (10%)	Professional format; clear organization; no errors; proper citations	Acceptable format; organized; few errors; citations present	Poor format; disorganized; many errors; missing citations

Submission Requirements:

- Submit via Canvas by specified deadline
- Include AI Collaboration Log documenting all AI tool usage
- Late submissions: -10% per day (up to 3 days), then 0

Assignment 3: Team-Based Activities and Discussions (15%)

Purpose: These in-class activities assess collaborative problem-solving, AI-enhanced teamwork, and application of concepts in real-time.

Criteria (Weight)	Excellent (90-100%)	Satisfactory (70-89%)	Needs Improvement (0-69%)
Team Collaboration (35%)	Actively contributes, supports teammates, facilitates discussion, exemplary team player	Contributes regularly; cooperative; participates in discussions	Minimal contribution; does not engage teammates; passive role
Problem-Solving (35%)	Demonstrates critical thinking; proposes creative solutions; applies concepts effectively	Adequate problem-solving; applies concepts; solutions are reasonable	Limited problem-solving ability; fails to apply concepts; weak solutions
AI-Human Balance (30%)	Optimal integration of AI tools and human judgment; validates AI suggestions; demonstrates HASRL principles	Uses AI appropriately; some validation; generally balanced approach	Over-reliance on AI or underutilization; no validation; poor balance

Activity Types:

- DMAIC case analysis exercises
- Process mapping workshops
- AI-assisted root cause analysis
- Team problem-solving challenges

Assignment 4: Mid-term Team Presentation & Report (20%)

Purpose: Teams present their project selection, problem definition, data collection strategy, and initial AI-enhanced analysis.

Components:

- **Presentation:** 12-15 minutes (+ 3 minutes Q&A)
- **Written Report:** 5-10 pages (double-spaced, 12pt Arial, not including appendices)

Criteria (Weight)	Excellent (90-100%)	Satisfactory (70-89%)	Needs Improvement (0-69%)
Problem Definition (20%)	Clear, measurable problem statement; well-justified scope; demonstrates business impact	Adequate problem definition; reasonable scope; shows relevance	Vague problem; poor scope definition; limited business connection
DMAIC Framework (20%)	Comprehensive Define/Measure phases; appropriate tools applied; methodical approach	Adequate Define/Measure phases; basic tools applied	Incomplete DMAIC phases; inappropriate tools; disorganized
Data Collection (15%)	Robust data collection plan; appropriate sample size; valid measurement system	Adequate plan; reasonable sample; basic measurement approach	Weak plan; insufficient sample; flawed measurement
AI Integration (20%)	Excellent AI documentation; validation demonstrated; optimal human-AI balance; AIAS Level 4-5	Good AI documentation; some validation; appropriate balance; AIAS Level 3	Poor AI documentation; no validation; inappropriate balance; AIAS Level 1-2
Presentation Quality (15%)	Professional delivery; clear visuals; excellent timing; engages audience; confident Q&A	Adequate delivery; acceptable visuals; reasonable timing; handles Q&A	Poor delivery; weak visuals; timing issues; struggles with Q&A
Report Quality (10%)	Professional format; comprehensive; clear writing; proper citations; no errors	Acceptable format; complete; readable; citations present; few errors	Poor format; incomplete; unclear writing; missing citations; many errors

Required Report Sections:

- Executive Summary
- Problem Statement and Business Context
- Define Phase: Project Charter, SIPOC, VOC Analysis
- Measure Phase: Data Collection Plan, Measurement System Analysis
- AI Collaboration Documentation and AIAS Assessment
- Team Contribution Statement
- References and Appendices

Assignment 5: Final Team Project Presentation & Report (20%)

Purpose: Teams present their complete Six Sigma project including analysis, solutions, and implementation plans with demonstrated AI-human collaboration.

Components:

- **Presentation:** 20 minutes (5 minutes Q&A)
- **Written Report:** 10-15 pages including 2 pages executive summary (double-spaced, 12pt Arial, not including appendices)

Criteria (Weight)	Excellent (90-100%)	Satisfactory (70-89%)	Needs Improvement (0-69%)
Complete DMAIC (25%)	All five phases thoroughly executed; advanced tools applied; rigorous methodology	All phases completed; appropriate tools; solid methodology	Incomplete phases; basic tools only; weak methodology
Analysis Quality (20%)	Sophisticated statistical analysis; valid conclusions; insightful interpretations; strong root cause identification	Adequate analysis; reasonable conclusions; satisfactory root cause analysis	Weak analysis; questionable conclusions; poor root cause identification
Solutions & Implementation (20%)	Creative, feasible solutions; detailed implementation plan; realistic timeline; comprehensive risk mitigation	Reasonable solutions; adequate implementation plan; basic risk assessment	Weak solutions; vague implementation; no risk assessment
AI-Human Collaboration (20%)	Exemplary AI integration; systematic validation; demonstrated HASRL mastery; AIAS Level 5; ethical considerations addressed	Good AI integration; validation present; AIAS Level 3-4; ethics considered	Limited AI integration; minimal validation; AIAS Level 1-2; ethics not addressed
Presentation Excellence (10%)	Polished, professional delivery; outstanding visuals; perfect timing; captivates audience; expertly handles Q&A	Professional delivery; good visuals; appropriate timing; competent Q&A	Unprofessional; poor visuals; timing problems; weak Q&A

Criteria (Weight)	Excellent (90-100%)	Satisfactory (70-89%)	Needs Improvement (0-69%)
Report Excellence (5%)	Executive-level quality; comprehensive documentation; flawless writing; extensive citations; publication-ready	Professional quality; complete documentation; clear writing; adequate citations	Unprofessional; incomplete; poor writing; insufficient citations

Required Report Sections:

- Executive Summary
- Complete DMAIC Documentation (all five phases)
- Statistical Analysis and Results
- Solutions and Recommendations
- Implementation Plan with Timeline and Budget
- Control Plan and Sustainability Strategy
- Comprehensive AI Collaboration Documentation (AIAS and HASRL)
- Lessons Learned and Reflections
- Team Contribution Statement and Peer Evaluations
- References and Appendices

Assignment 6: Individual AI Collaboration Portfolio (20%)

Purpose: This portfolio demonstrates individual growth in AI-enhanced quality control practices, reflecting on human-AI collaboration throughout the semester.

Portfolio Components:

- **AI Collaboration Logs:** Weekly documentation of AI tool usage
- **Reflection Essays:** 3 essays (beginning, mid-semester, end) on AI collaboration experiences

- **Professional Development Plan:** Future goals for AI-enhanced quality control work

Criteria (Weight)	Excellent (90-100%)	Satisfactory (70-89%)	Needs Improvement (0-69%)
AI Logs Completeness (25%)	All weeks documented; detailed entries; includes prompts, outputs, validation methods; demonstrates systematic tracking	Most weeks documented; adequate detail; basic tracking present	Many weeks missing; insufficient detail; poor tracking
Reflection Depth (30%)	Deep, critical reflection; demonstrates growth; connects theory to practice; addresses challenges and successes; metacognitive awareness evident	Adequate reflection; shows some growth; makes connections; acknowledges challenges	Superficial reflection; limited growth shown; weak connections; minimal self-awareness
Case Study Analysis (25%)	Sophisticated analysis of AI-human decision; applies HASRL framework; evaluates ethical dimensions; actionable insights	Adequate analysis; uses framework; considers ethics; provides insights	Weak analysis; framework misapplied; ethics ignored; limited insights
Professional Development (20%)	Specific, achievable goals; realistic timeline; demonstrates strategic thinking about AI-enhanced career; addresses skill gaps	Reasonable goals; adequate planning; considers AI in career	Vague goals; weak planning; limited career consideration

Reflection Essay Guidelines (3 essays required):

- **Essay 1 (Week 3):** Initial thoughts on AI collaboration (300-500 words)
- **Essay 2 (Week 10):** Mid-semester reflection on AI-human balance (300-500words)

- **Essay 3 (Week 15):** Final synthesis and professional insights (300-500 words)