

HON 300: Quality and Process Improvement in Action – 3 credits (Sec 21)
ISAT 680: Quality and Process Improvement in Action – 3 credits (Sec 1)
Spring 2013

COURSE AND INSTRUCTOR INFORMATION

Meeting Time:	Mondays, 5:00 - 7:30 pm	
Meeting Location:	ISAT/CS 337	
Instructors:	Nicole Radziwill, ISAT	Rebecca Simmons, COB
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Both Professors have office hours available by appointment.

NATURE OF COURSE CONTENT

Course Description: This course prepares students to analyze complex problems in integrated business, technology and engineering environments to generate tangible benefits, such as: improving product quality, productivity, efficiency, and the effectiveness of work processes; and saving time and money. Students will learn about variation, improvement cycles, quality tools, and problem solving techniques, and plan and execute quality improvement projects. Students will engage in a variety of reflection techniques to enhance and synthesize their experience.

This course goes beyond the philosophy and foundational concepts covered in other business and engineering classes, and introduces students to *practical strategies for defining and executing quality and process improvement projects in their community*. This course enables students to integrate material learned from previous quality-related business and engineering courses into a practical, actionable framework to make personal contributions to the community.

Students will learn about basic quality tools, lean thinking, and Six Sigma, and use them to deliver tangible value for a local nonprofit or small business via service learning, a teaching method that fosters student learning and development through active participation in thoughtfully organized service to the community.

Students will learn about variation in systems and processes, improvement cycles, quality tools, and problem solving techniques. Students will apply this knowledge through the planning and execution of basic quality improvement projects for local nonprofit agencies, coordinated through the JMU Center for Service Learning (CSL) and/or local businesses, coordinated through the JMU Small Business Development Center (SBDC) or the local chapter of the American Society for Quality (ASQ).

Service Learning: For the service learning component of this course, students will be placed in teams and assigned a client during the first two weeks of the semester. Working with your team, it is important that you schedule regular visits to meet with your client to work on your project. At the end of the semester, each student will submit a service learning log detailing dates, hours worked and brief description of each client interaction.

Students will be provided with release time from class and are expected to utilize this time to meet with their client and work on project related activities. Given the nature of project work, students can expect to spend additional time involved in service learning activities and/or team activities outside the classroom.

Because reflection is so integral to the service learning component of the course, the schedule includes times for students to reflect on the service experience as it relates to coursework, personal development and civic involvement. Reflection activities will include journaling, directed writing, in-class activities and attendance at reflection services hosted by the CSL office (schedule to be provided).

In addition to providing a benefit to the community, engaging in service learning provides students with hands-on experience working with quality and process improvement in a real organization. Students will also gain experience working in cross functional teams with diverse clients and learn the value of reflection for both personal and organizational development.

Coordinated Courses: This class is **cross-listed** as ISAT 680 for graduate students, who will complete individual projects that they identify themselves in conjunction with a client that they find on their own. This class is **coordinated** with ISAT 341 - Simulation and Modeling (Radziwill) and ISAT 252 - Programming and Problem Solving (Benton). What this means to you is that you will have the opportunity to *subcontract* programming teams and simulation teams to deliver real value to the clients you are serving in our community.

Objectives: Upon completion of the course, students will be able to:

- Relate the historical development of quality, describe the current state of the practice of quality, and explain the philosophical, social, and ethical issues associated with quality
- Identify the most appropriate basic quality tool for exploring, classifying and scoping quality problems
- Clarify project goals and organize project resources through the creation of a Project Charter
- Explain Deming's PDCA (Plan-Do-Check-Act) approach to problem solving
- Utilize specific techniques appropriate to each of the five phases of the Six Sigma DMAIC process (Define-Measure-Analyze-Improve-Control)
- Articulate concepts associated with Lean thinking and strategies for eliminating waste
- Critically reflect on their own and others experiences, and discuss the role of service within a community

SCHEDULE AT A GLANCE

Weeks 1:	Course Overview, Past Projects, NDAs & Scoping
Week 2:	Problem Solving Methodologies (PDSA/DMAIC/DMADV) & Performance Indicators
Weeks 3-4:	Project Charters & Basic Quality Tools
Week 5:	Problem Solving for Quality Improvement – the Define phase
Weeks 6-7:	Problem Solving for Quality Improvement – the Measure phase
Weeks 8-10:	Problem Solving for Quality Improvement – the Analyze phase
Weeks 11-12:	Problem Solving for Quality Improvement – the Improve phase
Weeks 13-14:	Problem Solving for Quality Improvement – the Control phase
Week 15:	Presentations & Final Reflection

Given the dynamic environment of non-profit organizations and business, the class schedule is approximate and is subject to change. Students are responsible for adapting to these changes; course updates will be posted in Blackboard.

GOALS OF THE COURSE

COURSE OBJECTIVES

By the end of this course, you will learn some of the basic quality tools, lean thinking and the DMAIC (Define-Measure-Analyze-Improve-Control) methodology from Six Sigma. You will also analyze real-world data and implement process improvements at a local non-profit agency or business. The learning goals for this course are listed below. You will:

1. **Understand** and be able to use basic terminology used by practitioners in the quality field
2. **Describe** and **apply** a systematic process/methodology for successful execution of a process improvement project
3. **Utilize** tools common to process improvement projects including Project Charters, Process Mapping, and the use of statistical software
4. **Analyze** complex problems and **generate** tangible benefits
5. **Practice** presentation, writing and project management skills, as well as reflective judgment and interpersonal skills
6. **Appreciate** the contribution, importance and role of quality and process improvement within an organization, across functional lines
7. Critically **reflect** on their own and others experiences, and discuss the role of service within a community

METHODS OF EVALUATION

The purpose of this course is to produce *results and artifacts* that provide value to real community agencies and local businesses. As a result, participation and professionalism are essential - when you are interacting with your team, your instructors, and your clients.

GRADING

Because the course is project-based, evaluation will be tied to the successful planning and execution of a quality improvement project, along with individual and group reflection activities. The instructors will work as *partners* with you to make sure that your team iteratively produces artifacts that are of value to the client. The assessment of each student (as it relates to their project) will be jointly performed by the instructors and the project sponsor from the community agency, and combined with peer evaluations. This will include evaluation of the team's written and oral communication as they summarize the background, methodology, results and recommendations from their projects in terms of **Strengths** and **Opportunities for Improvement (OFIs)** following the feedback structure of the Malcolm Baldrige National Quality Award (MBNQA).

Ultimately, the letter grade will reflect a subjective assessment of your professionalism as you complete the project, determined in consultation with the client, where A = strongly meets client expectations or exceeds client expectations AND completed all Required Components of course, B = fundamentally meets client expectations, possibly with some gaps AND completed all Required Components of course, C = did not meet client expectations, but completed all Required Components of course, and F = did not meet client expectations OR did not complete all Required Components of course.

Required Components

- Effective project definition and scoping as demonstrated in a **Project Charter** (successful when the client provides sign-off)
- Results and synthesis of solution shown in end of course **Project Presentation** to include brief (2-4 minute) narrated Powerpoint or video (no Prezi)
- **Reflection & Service Learning Log**
- Thoughtful participation in **Strength/OFI exercise** at end of semester

REQUIREMENTS & POLICIES

REQUIRED TEXTS:

None. Readings will be assigned from a variety of texts, the JMU library and the web.

ADD/DROP DEADLINES

All of the dates related to adding, dropping, and withdrawing from this course are in the JMU catalog and are posted on the University Registrar's web site. **YOU ARE RESPONSIBLE FOR KNOWING THESE DATES.**

Exceptions in the form of either WP or WF may be granted if a student demonstrates the existence of extenuating circumstances, outside the student's control, that prevented attending or performing well in class. A student seeking an exception to this rule must provide a letter to the Director of the Program describing the request and the justification (including supporting documentation). If you have an extraordinary situation you may be granted an "I," but only under extraordinary and unanticipated circumstances that you have discussed with both faculty in advance.

COURSE POLICIES AND PROCEDURES

All assignments are due at the start of class, or by the posted deadline in Blackboard'. Late assignments will not be accepted for any reason (including computer failure); failure to submit assignments when due will result in a zero (0) grade for that assignment. If you cannot attend class, it is your responsibility to submit your assignment prior to the start of class. If you have an emergency (such as hospitalization), that will cause you to miss a deadline you must notify both faculty as quickly as possible, preferably via email. If we agree that it is a true emergency, we will do our best to accommodate you.

Attendance/Being Late

You are expected to attend and participate in class, group meetings and client sessions. We do not take attendance, *but we do notice when people are missing.* The amount of understanding and flexibility you will get from us will be inversely proportional to the amount you miss.

Given the interactive nature of this course, participation is expected. Missing class regularly will negatively impact your ability to successfully contribute to the completion of the project. If you miss a class, it is your responsibility to get caught up on any/all missed material.

If you are absent for extended medical or university sponsored reason, you must provide an official note from the sponsoring university organization (this includes JMU athletics) or from your physician. No other evidence will be accepted. Extended class absence (more than one week) or withdrawal: Contact the JMU Office of the Ombudsperson at <http://www.jmu.edu/stulife/ombuds.shtml> or 540-568-6287 or 540-568-6183.

Working in Groups

Group work is an important part of this course. Working in a group requires a commitment and sense of responsibility, both to the task and the other members of the group. Each individual is expected to contribute to the completion of a successful group project. Should a group find that they are struggling, they should seek guidance from either faculty member.

Homework

Homework will not be turned in for this class. Your completion and understanding of the material will be assessed through your participation in class, your group project and your service learning log.

Special Needs

To request disability accommodations, please register with Disability Services. Once you have registered, you need to provide us with an Access Plan letter outlining your accommodations. Either one of us will be glad to speak with you privately during office hours to discuss your needs, or you may contact us via email. If you contact us via email, you need only say that you are contacting us to arrange for your accommodation; you do not need to elaborate in your email. If you have an approved Access Plan, be sure to present a request for accommodations at least seven (7) calendar days prior to the scheduled beginning time of the test or event. Due to family and professional obligations, we can not necessarily stay later than a scheduled class time, and space on campus is limited, so it is necessary to work things like this out in advance.

Class Participation and Assigned Reading

It is important that you are prepared for each class. You should read assigned materials before coming to class so that you will get the most out of class, and are able to discuss the day's topics, ask questions and contribute to class activities. Questioning and discussing in class is expected and will contribute to assessing your final grade for the class.

Honor Code

You are expected to abide by the JMU Honor Code at all times, which is posted on-line at <http://www.jmu.edu/honor/code.html>. It is your responsibility to understand how your actions or inactions could impact your grade. Students are expected to complete all course work individually, unless specifically instructed to work as part of a team for a particular assignment.

All acts of dishonesty in any work constitute academic misconduct. Examples of academic dishonesty that are violations of the Honor Code include, but are not limited to, the following: turning in work under only your own name that you did not actually do completely yourself (for collaborative work, always list the names of your collaborators), plagiarizing other people's words or computer code (and that includes text off the Internet), receiving unauthorized help on an exam, providing unauthorized help on an exam (and that includes talking about an exam before all students have taken it), and misuse of materials that are permitted for an exam. Violations of the JMU Honor Code will be dealt with in accordance with the policy that permits professors, at their own discretion, to assess and penalize students for cheating. All incidents of academic dishonesty will be reported to the Honor Committee, according to the requirements of the university.