Instructor: Rayan Bagchi  
Office: CBA 3.434A; Phone: 512-458-1831 (Home)  
Office Hours: MW 12:30 - 1:30 pm and by appointment;  
Mail Box: Dept. of IROM, CBA 5.202; e-mail: Uttarayan.Bagchi@mccombs.utexas.edu;  
Course Web Page: via Canvas

**COURSE TOPICS:**  
This course focuses on the essence, principles, and practices of total quality management (TQM). Some of the ideas and topics that are covered are: process focus; service quality; customer satisfaction; process control and capability; inspection policies; economics of quality; sustainability; report cards; quality function deployment (QFD); and organizational learning.

**COURSE PREREQUISITE:**  
For business majors, Operations Management 335 (or Management 335 or Management Science 335) or Operations Management 335H (or Management 335H or Management Science 335H) with a grade of at least C; for others, admission to an appropriate major sequence in engineering.

**COURSE LEARNING OBJECTIVES:**  
By the end of this course, you should have gained an improved understanding of:

- what quality is as viewed from a variety of perspectives;
- the foundational elements of total quality management;
- the organizational, competitive and economic potential of quality.

and acquired the skills to

- analyze a process to uncover improvement opportunities;
- determine if a process is in control and its capability;
- articulate a business case for investment in quality.

**LEARNING MATERIALS:**  
The Memory Jogger II by Brassard and Ritter

A readings packet containing all the readings and cases is available from the University Co-op Custom Publishing. A class companion packet containing some materials we shall use in class is available from the GSB Copy Center (GSB 3.136). Please remember to bring the class companion packet to class starting with Session 3.

**PERFORMANCE EVALUATION:**  
Class Participation 25%  
Case Reports (Five) 10%  
Team Presentation – Round 1 (*October 18*) 10%  
Team Presentation – Round 2 (*December 4*) 10%  
Homework (*due on October 23; described under Session 14*) 10%  
Exam 1 (*October 4, 7:00-9:30 PM*) – covers Sessions 1-10 15%  
Exam 2 (*November 15, 7:00-9:30 PM*) – covers Sessions 1-21 20%  
Total 100%  

**Case Reports:** At the beginning of every class session in which a case report is due, please turn in a typed report using the Case Report Template (on Canvas), not to exceed 1 double-spaced page, which addresses the case discussion questions listed for that session in the detailed schedule. The report should...
not have any attachments. **No late report will be accepted.** These reports will not be returned to you, so please keep a copy for yourself. In preparing the case reports, you are free to work with others in this class, and should you choose, you may submit a group report. But whatever bears your name must have your substantive input. Only the top five case report grades will count toward your course grade.

**Class Participation:** This, most important component of your course grade, is essentially a measure of how actively you are engaged in class proceedings, and what you contribute to the learning of others. Class attendance is an essential component of class participation.

**Team Presentations:**
Your team will make two oral presentations to the class, of approximately 10 minutes duration each, on topics assigned to you. The presentations are scheduled for October 18 and December 4. Please form your own team by the end of Session 5.

**McCombs Classroom Professionalism Policy**
- **Students arrive on time.** On time arrival shows respect for both fellow students and faculty and it enhances learning by reducing avoidable distractions.
- **Students display their name cards.** This permits fellow students and faculty to learn names, enhancing opportunities for community building and evaluation of in-class contributions.
- **Students minimize unscheduled personal breaks.** The learning environment improves when disruptions are limited.
- **Students are prepared for each class.** Unprepared students cannot contribute to the overall learning process. This affects not only the individual, but their peers who count on them, as well.
- **Students do not speak unless they are speaking to the entire class.** Do not engage in private conversations, however short or innocuous, while the class is in progress. They are disruptive and discourteous to the speaker. Raise your hand if you have a question or comment.
- **Laptops are closed and put away and phones and wireless devices are turned off.**

---

**University-Mandated Syllabus Disclosures**

**Important Notifications**

**Students with Disabilities**
Students with disabilities may request appropriate academic accommodations from the Division of Diversity and Community Engagement, Services for Students with Disabilities, 512-471-6259, [http://www.utexas.edu/diversity/ddce/ssd/](http://www.utexas.edu/diversity/ddce/ssd/).

**Religious Holy Days**
By UT Austin policy, you must notify me of your pending absence at least fourteen days prior to the date of observance of a religious holy day. If you must miss a class, an examination, a work assignment, or a project in order to observe a religious holy day, you will be given an opportunity to complete the missed work within a reasonable time after the absence.

**Policy on Scholastic Dishonesty**
The McCombs School of Business has no tolerance for acts of scholastic dishonesty. The responsibilities of both students and faculty with regard to scholastic dishonesty are described in detail in the BBA Program’s Statement on Scholastic Dishonesty at [http://www.mccombs.utexas.edu/BBA/Code-of-Ethics.aspx](http://www.mccombs.utexas.edu/BBA/Code-of-Ethics.aspx). By teaching this course, I have agreed to observe all faculty responsibilities described in that document. By enrolling in this class, you have agreed to observe all student responsibilities described in that document. If the application of the Statement on Scholastic Dishonesty to this class or its assignments is unclear in any way, it is your
responsibility to ask me for clarification. Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and/or dismissal from the University. Since dishonesty harms the individual, all students, the integrity of the University, and the value of our academic brand, policies on scholastic dishonesty will be strictly enforced. You should refer to the Student Judicial Services website at http://deanofstudents.utexas.edu/sjs/ to access the official University policies and procedures on scholastic dishonesty as well as further elaboration on what constitutes scholastic dishonesty.

Emergency Preparedness and Emergency Plan Instructions
Emergency Preparedness means being ready. It takes an effort by all of us to create and sustain an effective emergency preparedness system. You are your own best first responder. The site http://www.utexas.edu/safety/preparedness/ should be used as a resource to better understand emergency preparedness at UT, and how you can become part of and contribute to the preparedness community.

Emergencies may range from inclement weather, to building evacuations, to campus closures, and the university has a variety of tools to communicate with the public in the event of these and other possible emergencies. Depending on the type of emergency, we may use some or all of the following tools to communicate with faculty, staff and students:

**Siren System**
This system is tested at 11:50 AM on the first Wednesday of every month, and delivers a siren warning and public address in the event of certain outdoor emergencies.

**Emergency Web Site**
You may want to bookmark the emergency Web site because it is updated with information during actual emergencies or campus closures.

**Local Press and Social Media**
University Communications staff send emergency information to the press and update social media with public safety messages. Because of the transient nature of our population, the university depends a great deal on the press and social media to keep students, faculty, and staff informed during campus emergencies.

**Pager System**
Our campus first responders, resident advisors, and some building managers are part of the AWACS paging system. The pagers send text messages about emergencies on campus and alert city responders (APD, AFD, EMS, Office of Emergency Management, etc.) to campus crisis situations.

**Fire Panel Systems**
Residence halls are equipped with fire panel systems that have a public address capability. Resident advisors are trained to use these systems in emergencies in order to make announcements to the entire building regarding evacuation, shelter in place, etc.

**Text Alerts**
The university collects cell phone numbers from members of the campus community for emergency text messages. Sign up for campus text alerts online.

**University Group E-mail**
During emergencies, UT Safety Alert sends an “urgent” group e-mail to every student, faculty and staff member. The e-mail directs individuals to the emergency Web site for additional information and instruction.

**Voicemail to Office Telephones**
This tool leaves a voice message on every faculty and staff member’s office phone on campus.

**Telephone Tree**
The president’s office has a telephone tree of department contacts that is initiated during an emergency.

**Cable TV**

Residence halls and several of our public gathering places have cable televisions where emergency announcements get posted.

**Public Safety Patrol Car Announcements**

UTPD patrol cars are equipped with PA systems, which officers can use to provide instructions to pedestrians during emergencies.

**University Emergency Information Line — 512-232-9999**

Students, faculty, and staff can call this main number for information about campus closures.

The implementation of each tool described above is assigned to an individual who has at least two backups who can also carry out the communications task. Individuals with electronic communication tools assigned to them have remote access (from their homes, etc.) to those tools.

The police department and the associate vice president for Campus Safety and Security are typically the ones who deliver emergency information to university administration. Upon considering this information, administration develops the messages and activates campus-wide communications. The only exceptions to this are the sirens and pager system, which are activated directly by UTPD in extremely urgent situations where immediate action is required.

Please note the following recommendations regarding emergency evacuation, provided by the Office of Campus Safety and Security, 512-471-5767, [http://www.utexas.edu/safety/preparedness](http://www.utexas.edu/safety/preparedness):

- Occupants of buildings on The University of Texas at Austin campus are required to evacuate buildings when a fire alarm and/or an official announcement is made indicating a potentially dangerous situation within the building is activated. Alarm activation or announcement requires exiting and assembling outside. The directive “Lockdown” is used to protect occupants by limiting access to buildings and rooms.

- Familiarize yourself with all exit doors of each classroom and building you may occupy. Remember that the nearest exit door may not be the one you used when entering the building.

- Students requiring assistance in evacuation must inform the instructor in writing during the first week of class.

- In the event of an evacuation, follow the instruction of faculty or class instructors.

- Do not re-enter a building unless given instructions by the following: Austin Fire Department, The University of Texas at Austin Police Department, or Fire Prevention Services office.

- Please call the Behavior Concerns Advice Line (512-232-5050) if you have concerns regarding the attitude or actions of students, staff or faculty.

- If you experience an emergency either on or off campus, you should call 911 to report the situation.

- Further information regarding emergency evacuation routes and emergency procedures can be found at: [http://www.utexas.edu/emergency](http://www.utexas.edu/emergency).
OM 337: DETAILED SCHEDULE

SESSION 1 (W, 8/30) WHAT IS QUALITY?
2. Memory Jogger – Radar Chart

SESSION 2 (W, 9/6) WHAT IS TQM?
Case: Paul Chesler, Director, Quality Assurance
Case Questions:
1. What are the causes of the quality problem on the Greasex line?

SESSION 3 (M, 9/11) PROCESS IMPROVEMENT
Readings: 1. Memory Jogger- Brainstorming, Cause & Effect/Fishbone Diagram, Flowchart, Force Field Analysis, Histogram, Nominal Group Technique (and Multivoting), and Pareto Chart
Cases: Florida Power & Light (A) & (B)
Case Questions:
1. Carefully consider the SUI equation: SUI = Frequency x Duration (pages 6-9 of the (A) case).
   Suppose the following SIRs (Service Interruption Reports) describe the outages experienced in 2012 by a district with a customer base of 10,000:

<table>
<thead>
<tr>
<th>SIR #</th>
<th>Number of customers affected</th>
<th>How long the outage lasted</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2,000</td>
<td>10 minutes</td>
</tr>
<tr>
<td>2</td>
<td>8,000</td>
<td>5 minutes</td>
</tr>
<tr>
<td>3</td>
<td>5,000</td>
<td>4 minutes</td>
</tr>
</tbody>
</table>

   What was the SUI for the district in 2012? Frequency for the district in 2012? Duration for the district in 2012? Be careful to include the unit of measurement for each.

2. What kind of thinking is promoted by a Pareto chart? By a cause-and-effect diagram?

SESSION 4 (W, 9/13) PROCESS IMPROVEMENT
Readings: 1. Memory Jogger - Problem-Solving/Process-Improvement Model: Improvement Storyboard, Run Chart, Scatter Diagram, and Tree Diagram
Cases: Florida Power Light (A) & (B)
Case Questions:
1. Why use a storyboard?
2. Name one adjective that best characterizes FPL’s problem-solving method known as the quality-improvement story (QI Story) shown in Exhibit 2 of the (A) case.
3. What are the characteristics of FPL as an organization? In other words, how is FPL different (say, from Google/Ford/Disney/GE)?

SESSION 5 (M, 9/18) PROCESS THINKING IN HEALTHCARE
Readings: 1. Memory Jogger- Team Guidelines
Case: Massachusetts General Hospital: CABG Surgery (A)
Case Questions:
1. What are the reasons for using CABG as the starting point for care path creation at MGH?
2. For each key stakeholder (surgeons, nurses, administrative staff, and patients) of MGH, identify why there may be resistance to the care path. For each key concern, how should MGH respond?
3. What are the causes of long lengths of stays of CABG patients at MGH?
Assignment: Case Report; Form Team

SESSION 6 (W, 9/20) PROCESS THINKING IN HEALTHCARE
Readings: 1. “Leveraging Processes for Strategic Advantage”
Case: Massachusetts General Hospital: CABG Surgery (A)
Case Questions:
5. If CABG care path is a success at MGH, what are some of the longer-term improvement opportunities that would leverage the CABG success?
6. What caused SmithKline Beecham’s shift to Processes? Xerox’s? Pepsi’s? USAA’s?

SESSION 7 (M, 9/25) SERVICE QUALITY
Case: Singapore Airlines (A)
Case Questions:
1. What are the two or three key elements of SIA's competitive strategy?
2. Evaluate the elements of SIA's cabin-crew-management program (e.g., training program, performance measurement, feedback, and communication procedures).
Assignment: Case Report

SESSION 8 (W, 9/27) SERVICE QUALITY
Case: Singapore Airlines (A)
Case Questions:
2. How does SIA assess service quality?
3. How sustainable is SIA’s strategy?
SESSION 9 (M, 10/2)  PROCESS MODEL OF CUSTOMER SATISFACTION

SESSION 10 (W, 10/4)  Review

Exam 1 on Wednesday, October 4, 7:00-9:30 PM, covering Sessions 1-10

NO CLASS or OFFICE HOURS on Monday, October 9

SESSION 11 (W, 10/11)  ECONOMICS OF QUALITY
Readings:  1. “Zero Defections: Quality Comes to Services”

SESSION 12 (M, 10/16)  MEASUREMENT, FEEDBACK, MOTIVATION

SESSION 13 (W, 10/18)  TEAM PRESENTATIONS

SESSION 14 (M, 10/23)  PROCESS CONTROL & CAPABILITY
Readings:  1. Memory Jogger – Control Charts, Process Capability
Case:  Excel Logistics Services
Case Questions:
1. Help Stalk organize the data by preparing a run chart for the receiving area.
2. Prepare appropriate process control charts to see if the receiving process is in control. Is the receiving process in or out of control?
3. Customer service requires that receiving process errors should never exceed 2 percent on any given day. What percentage of the days is likely to exceed 2 percent error, given the current performance in receiving? Assume a total of 8,000 transactions per day, 4,000 in each module.
4. Prioritize the set of actions you would take to ensure that more than 99 percent of the days have less than 2 percent receiving process errors.
Assignment  Homework*

*Answer the first three case questions above for Excel Logistics Services and turn in your written response at the start of the class. This is an individual assignment.
<table>
<thead>
<tr>
<th>SESSION 15 (W, 10/25)</th>
<th>SIX SIGMA; OPTIMAL INSPECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Readings:</td>
<td>1. “Six Sigma: A Basic Overview”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SESSION 16 (M, 10/30)</th>
<th>OPTIMAL INSPECTION</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>SESSION 17 (W, 11/1)</th>
<th>ORGANIZATIONAL LEARNING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case:</td>
<td>Analog Devices: The Half-Life System</td>
</tr>
<tr>
<td>Case Questions:</td>
<td>1. How is Schneiderman’s half-life effect different from the well-known experience/learning curve effect?</td>
</tr>
<tr>
<td></td>
<td>2. What is the role (= primary use) of the half-life method at Analog?</td>
</tr>
<tr>
<td>Assignment:</td>
<td>Case Report</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SESSION 18 (M, 11/6)</th>
<th>OPERATIONAL FOCUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case:</td>
<td>Shouldice</td>
</tr>
<tr>
<td>Case Questions:</td>
<td>1. How good is the Shouldice Hospital (cost, speed, quality)?</td>
</tr>
<tr>
<td></td>
<td>2. What is Shouldice’s service concept?</td>
</tr>
<tr>
<td></td>
<td>3. What is Shouldice’s target market (both external and internal market segments)?</td>
</tr>
<tr>
<td></td>
<td>4. What is Shouldice’s operating strategy?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SESSION 19 (W, 11/8)</th>
<th>QUALITY FUNCTION DEPLOYMENT</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>SESSION 20 (M, 11/13)</th>
<th>QUALITY FUNCTION DEPLOYMENT</th>
</tr>
</thead>
</table>

| SESSION 21 (W, 11/15) | Review |

*Exam 2 on Wednesday, November 15, 7:00-9:30 PM, covering Sessions 1-21*
NO CLASS or OFFICE HOURS on Monday, November 20

NO CLASS or OFFICE HOURS on Monday, November 27

SESSION 22 (W, 11/29)  TEAM PRESENTATIONS

SESSION 23 (M, 12/4)  HEALTH AND SAFETY
Case: Workplace Safety at Alcoa (A)
Case Questions:
1. What has been and needs to be the half-life of Mission Valley’s safety improvement?
2. As Paul O’Neill, how do you describe what has and has not worked at Mission Valley?
Assignment: Case Report

SESSION 24 (W, 12/6)  IMPLEMENTING QUALITY
Case: Workplace Safety at Alcoa (A) Workplace Safety at Alcoa (B)
Case Questions:
3. What is your evaluation of Linda Merton’s plan for 1992?
4. Given your understanding of what happened at Mission Valley, what would you recommend?
4. What had occurred at the plants in Mexico? What should have occurred?
5. What should Richard Green have done?
6. What are O’Neill’s objectives?
7. What are his alternatives, given what he had learned?

SESSION 25 (M, 12/11)  IMPLEMENTING QUALITY
Case: Workplace Safety at Alcoa (A) Workplace Safety at Alcoa (B)
Case Questions:
8. What should O’Neill do?
9. Given what you know about O’Neill, what do you think he did?
<table>
<thead>
<tr>
<th>Session</th>
<th>Day</th>
<th>Date</th>
<th>Topic</th>
<th>Case/Exercise</th>
<th>Assignment Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>W</td>
<td>8/30</td>
<td>What is quality?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>W</td>
<td>9/6</td>
<td>What is TQM?</td>
<td></td>
<td>Paul Chesler</td>
</tr>
<tr>
<td>3</td>
<td>M</td>
<td>9/11</td>
<td>Process Improvement</td>
<td>Florida Power Light (A) &amp; (B)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>W</td>
<td>9/13</td>
<td>Process Improvement</td>
<td>Florida Power Light (A) &amp; (B)</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>M</td>
<td>9/18</td>
<td>Process Thinking in Healthcare</td>
<td>Mass General Hospital</td>
<td>Case Report; Form Team</td>
</tr>
<tr>
<td>6</td>
<td>W</td>
<td>9/20</td>
<td>Process Thinking in Healthcare</td>
<td>Mass General Hospital</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>M</td>
<td>9/25</td>
<td>Service Quality</td>
<td>Singapore Airlines (A)</td>
<td>Case Report</td>
</tr>
<tr>
<td>8</td>
<td>W</td>
<td>9/27</td>
<td>Service Quality</td>
<td>Singapore Airlines (A)</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>M</td>
<td>10/2</td>
<td>Process Model of Satisfaction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>W</td>
<td>10/4</td>
<td>Review</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**EXAM 1**  Wednesday, October 4, 7:00-9:30 p.m.  
(EXAM 1 covers material from Sessions 1-10)

<table>
<thead>
<tr>
<th>Session</th>
<th>Day</th>
<th>Date</th>
<th>Topic</th>
<th>Case/Exercise</th>
<th>Assignment Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>W</td>
<td>10/11</td>
<td>Economics of Quality</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>M</td>
<td>10/16</td>
<td>Measurement, Feedback, Motivation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>W</td>
<td>10/18</td>
<td>Team Presentations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>M</td>
<td>10/23</td>
<td>Process Control &amp; Capability</td>
<td>Excel Logistics</td>
<td>Homework</td>
</tr>
<tr>
<td>15</td>
<td>W</td>
<td>10/25</td>
<td>Six Sigma; Optimal Inspection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>M</td>
<td>10/30</td>
<td>Optimal Inspection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>W</td>
<td>11/1</td>
<td>Organizational Learning</td>
<td>Analog Devices</td>
<td>Case Report</td>
</tr>
<tr>
<td>18</td>
<td>M</td>
<td>11/6</td>
<td>Operational Focus</td>
<td>Shouldice</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>W</td>
<td>11/8</td>
<td>Quality Function Deployment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>M</td>
<td>11/13</td>
<td>Quality Function Deployment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>W</td>
<td>11/15</td>
<td>Review</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**EXAM 2**  Wednesday, November 15, 7:00-9:30 p.m.  
(EXAM 2 covers material from Sessions 1-21)

<table>
<thead>
<tr>
<th>Session</th>
<th>Day</th>
<th>Date</th>
<th>Topic</th>
<th>Case/Exercise</th>
<th>Assignment Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>W</td>
<td>11/29</td>
<td>Team Presentations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>M</td>
<td>12/4</td>
<td>Health and Safety</td>
<td>Alcoa (A)</td>
<td>Case Report</td>
</tr>
<tr>
<td>24</td>
<td>W</td>
<td>12/6</td>
<td>Implementing Quality</td>
<td>Alcoa (A) &amp; (B)</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>M</td>
<td>12/11</td>
<td>Implementing Quality</td>
<td>Alcoa (A) &amp; (B)</td>
<td></td>
</tr>
</tbody>
</table>

**PLEASE Note: Evening Exams on Oct. 4 & Nov. 15; NO CLASS or Office Hours on Oct. 9, Nov. 20, & Nov. 27)**