Course Description
Lean Six Sigma Six Sigma techniques, introduced to industry in the late 1980’s, use data-driven decisions to reduce defects, drive down costs and increase efficiency. This methodology focuses on minimizing process variation, thereby enabling the process to operate more smoothly and efficiently. Lean is a process that focuses on eliminating waste and streamlining operations. Lean Six Sigma combines the two processes, providing a powerful tool to make improvements in any process or business. In this course, students learn the history, context, and tools of Lean/Six Sigma and apply the process in a course project.

Course Objectives
1) Develop a broad understanding of Lean/Six Sigma principles and practices
2) Build capability to implement Lean/Six Sigma initiatives in manufacturing operations
3) Operate with awareness of Lean/Six Sigma at the enterprise level
4) Develop skills in problem solving and root cause analysis
5) Compare and contrast lean with the Theory of Constraints and Quick Response Manufacturing.
6) Define an appropriate Lean Six Sigma Project
7) Prepare the students for Green Belt Certification

Course Requirements
- DSCI-232 (Business Statistics)
- DSCI-304 (Operations Management)

School of Business learning goals
- Goal 1: QUANTITATIVE FLUENCY. Students will demonstrate competency in logical reasoning and data analysis skills solving problems related with quality control and statistical analysis. Assessment will take place in the exams and in the final project.
- Goal 2: INTELLECTUAL INNOVATION AND CREATIVITY. Students will be able to demonstrate their resource fullness and originality in addressing extemporaneous problems integrating their knowledge from multiple sources

Course Expectations
As your teacher I have the following responsibilities:

1. Come prepared to every class.
2. Plan my class so you can accomplish the objectives listed in the syllabus.
3. Treat you as responsible adults.
4. Consider that it is not always your fault if you don’t understand the material.
5. Create a mutually respectful classroom environment.
6. Encourage you to ask and answer questions.

As students you have the following responsibilities:

1. Come prepared to every class.
2. Complete all work on time with proper thought.
3. Behave as responsible adults.
• Consider that it is not always my fault if you don’t understand the material.
• Treat others with respect.
• Be familiar with basic functionalities of Microsoft Excel. Use the support material: Excel Essentials using Microsoft Excel for Data Analysis and Decision Making (ISBN: 0-534-39309-8).
• Learn the statistics software outside the classroom with guidance from the professor during office hours (Excel).
• If you are not familiar with excel, it is YOUR responsibility to do the Excel Review by yourself during the first days of class. You are expected at least to have this knowledge for the class.

Course Texts
1. An Introduction to Six Sigma & Process Improvement, authors: James Evans/William Lindsay Second Edition
2. Lean and Six-Sigma Primer. Indiana Quality Council

Additional Reading

MORE PAPERS WILL BE GIVEN DURING THE SEMESTER

Grading and Evaluation:

<table>
<thead>
<tr>
<th>Grading Scale</th>
<th>Letter Grade</th>
<th>Performance</th>
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</thead>
<tbody>
<tr>
<td>93-100</td>
<td>A</td>
<td>Superior</td>
</tr>
<tr>
<td>87-92.99</td>
<td>B+</td>
<td>Very Good</td>
</tr>
<tr>
<td>80-86.99</td>
<td>B</td>
<td>Good</td>
</tr>
<tr>
<td>77-79.99</td>
<td>C+</td>
<td>Fair</td>
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<td>70-76.99</td>
<td>C</td>
<td>Acceptable</td>
</tr>
<tr>
<td>60-69.99</td>
<td>D</td>
<td>Barely Acceptable, Passing</td>
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<tr>
<td>&lt; 60</td>
<td>F</td>
<td>Failure</td>
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</table>

<table>
<thead>
<tr>
<th>Grading Scale</th>
<th>Performance</th>
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</thead>
<tbody>
<tr>
<td>WA</td>
<td>Withdrawn Excessive Absences (equivalent to F)</td>
</tr>
<tr>
<td>X XF</td>
<td>Failure due to Academic Dishonesty</td>
</tr>
</tbody>
</table>

Topics Included:
INTRODUCTION TO LEAN PROCESS
LEAN AND SIX SIGMA
SIX SIGMA (CERTIFICATION PURPOSES)
Policies and Procedure

**Attendance Policies**

- **Students are expected to attend classes.** You cannot expect to have a thorough grasp of the material if you miss class. You are responsible for all material or assignments that are covered in class. Students are expected to contribute to class discussion. Class participation, attendance and promptness are expected and highly encouraged. It is not acceptable to be regularly tardy for class. If you miss a quiz /in class assignment due to tardiness, you may not make it up.

- **After 5 absences the student will be dropped from the class. NON-NEGOTIABLE.** You don’t have to come to the professor to excuse your absence, any absence counts for this rule!!!

- Attendance will be taken randomly in different time periods of the class. If you are absent at the time of attendance signing, it is considered absence. If you come in late and the attendance has already been passed, you will be considered absent. **Don’t bother to justify your absence since both justified and unjustified absences count for this rule.**

- **If you miss a session, the professor WON’T repeat the missed material on office hours,** it is your responsibility to read on your own and ask your classmates for missing concepts.

**Withdrawal Policy**

The professor does not process Instructor Withdrawals after the first evaluation for any reason.

- **No makeup exams will be given.** It is impossible to make an equivalent exam without the student at either an advantage or disadvantage. If you miss an exam, with or without a legitimate excuse, you will have a zero for that exam. This policy is non-negotiable.

- **No makeup quizzes will be given.** This policy is non-negotiable. If you registered late for the course and you missed any quizzes, you will have zero on those missing quizzes. The professor cannot wait until the last day to add/drop to start the class.

**SNAP Students/Special Accommodations/Athletes**

- Students that require special accommodations for exams or athletes must talk to the professor no later than ONE week after the semester start and provide necessary documentation.

- **SNAP students are responsible to remind the professor one week in advance before each exam to allow the professor enough preparation time.** If a student fails to remind the professor one week in advance before each exam, the student will have the same evaluation time as the rest of the class for that particular exam.

- **Center for Student Learning:** I encourage you to utilize the Center for Student Learning’s (CSL) academic support services for assistance in study strategies and course content. They offer tutoring, Supplemental Instruction, study skills appointments, and workshops. Students of all abilities have become more successful using these programs throughout their academic career and the services are available to you at no additional cost. For more information regarding these services please visit the CSL website at [http://csl.cofc.edu](http://csl.cofc.edu) or call (843)953-5635.
College of Charleston Honor Code

All work that you submit in this course must be your own; unauthorized group efforts will be considered academic dishonesty. This is particularly important with regards to assignments and exams. The sharing or copying of program files (e.g., spreadsheets) is a form of plagiarism. Academic dishonesty is a serious offense, which may result in a failing grade for the course and/or report to the Honor Board for evaluation. If copying is involved, both parties will be judged equally guilty.

Professional Behavior Guidelines:

- **Tardiness**: Please arrive on time. If you are later than the start of the class for three times in the semester, it will count as one missed class. If you are late in a quiz day, you have until the other students finish the quiz, the time will not start when you come into the classroom.
- **Side Conversations**: Side conversations make it difficult for your classmates to actively listen and learn.
- **Sleeping**: falling asleep in class is not considered professional behavior.
- **Inattention**: Please don’t read other material (chat, browsing the web, books) or study for other courses during my class. It’s not polite. Please pay attention and join in the individual and group discussions. It will help you master the material.
- **Cell Phone**: Please set your cell phone to silent mode while you are in the class. Cell rings can disturb your classmates as well as me.
- **Printing**: Do not print outside work during class. I will turn off the printer at the beginning of class to prevent any interruption to the class.
- **Navigating or other computer tasks different than class matters**: It is not polite to be doing course work or assignments other than the ones required in class. Also, it is not polite to navigate internet or check email while in class. One point will be taken out from your final grade for every time you do this in class. If you finish your work before other classmates, you might ask for permission to do other work in the computer and until given, you should not do other work.

Miscellaneous Policies:

- Although I will try to maintain the class schedule and objectives, I may need to make adjustments. You are responsible to check WEBCT CALENDAR for the most recent calendar of activities and dates. Don’t ask the professor about quizzes or exams dates, since she will not give you as accurate information as the WebCT Calendar.
- **I do not give additional projects to increase one’s grade before or after the exam(s). The professor does not round grades; a 59.9 total grade is an F.**

Complaints about Exams

- The professor encourages students to review in detail when exams are returned. You have two days after the graded evaluation was given to you to make any questions or complaints about it. If that time is passed, it means you have accepted the grade given.
- **No complaints are accepted for any reason if the two days period has passed (non-negotiable)**

Final Paper

General Comments and Guidelines

The following template has been provided as a guideline for the preparation and submission of your final paper required for Lean Six Sigma class. **You need instructor approval of your initial idea.**

Your paper submission should:

- Follow as closely as possible the layout and structure of this template
- The final paper will be a research paper dealing with an area of interest related to Lean process, Six Sigma or both
- The paper must be referenced appropriately (using footnotes, endnotes, bibliography, etc.) that adhere to a consistent style (e.g., MLA or Chicago).
Papers should be 25-30 pages double-spaced, 12-point font if using Times Roman or a similar serif font, or 10-point font if using Arial or a similar sans-serif font. Pages should be numbered. The title page and references do not count toward the length of the paper.

Your paper should follow the outline presented here. You can deviate from it, but if you do so substantially, you should have an extremely good reason.

**Title Page**

Create a separate page with the title of your paper, your name, email address, the course (SCIM 366), the semester and year (Spring 2018), the instructor’s name, and the date.

**1. Introduction**

1.1. Topic

This subsection states your topic, or describes your narrowed subject area.

1.2. Rationale

Please explain why you wanted to do this research in this subsection.

1.3. Additional information

Here, you should add any other related introductory material. You can add additional subsections if you need to.

**2. Statement of Purpose**

In this section, please present the questions your paper will answer, and an overview of the organization of the paper.

**3. Basic Description**

This section may have a number of subsections. Describe your topic in some detail. Your report should include references to facts you learned in your research. Organize your points in clear, distinct sections that describe things like the technology, hardware requirements, user interfaces, or different software packages that you investigated.

You must also address the most important research questions, especially how Lean and Six Sigma are being used to solve problems in a particular situation and why. *For example*, you could investigate how the variation have changed after the application of LSS in a particular situation; did they enable work to be done more quickly, more thoroughly, or more accurately than before, or did they even change the nature and type of work being done?

You can divide this section into subsections corresponding to logical categories, each subsection addressing a different aspect of LSS applications. Or, each subsection could address a small unit of a process. What is important is that the section as a whole be logically organized and easy to follow.

Important. You must cite a source for every major fact or statement in this section. This section should not contain your personal opinions about these facts or statements; those will come later in the paper.
4. Discussion

In this section, apply the insights you learned from the class to the topic of this paper. Consider the application carefully. Give your opinions, and support them with facts. Remember, your opinion may not be "right" or "wrong", but it certainly will be "justified" or "unjustified"!

Please use your best judgement about what to include; you won't be able to include everything, so please do not try.

4.1. Factual review

This section should add your opinions about the material in section 3. Describe the strengths and weaknesses of the approaches of the different applications. Based on your research and earlier knowledge of the area.

4.2. Personal Assessment

In this section, use the points mentioned in section 4.1 to suggest directions that the use of LSS in that area should take. Some questions that might help you do this are:

- Are LSS being used effectively in this field?
- Could LSS applications be used better, and if so, how?
- Are the applications too complicated for novices? Are the applications sophisticated enough for experts? What do these applications lack? In what ways are the applications well designed?

5. Conclusions

On the basis of your research, is this application of LSS appropriate and useful? Is it mature? Could the application be improved or increased, or made more effective? This brief section should summarize what you learned, and in particular explain what you want the reader to learn from your paper.

6. References

This section begins on a new page and contains all your references: journal articles, books, Internet resources, interviews, videos, films, and so forth. The reader should be able to locate all quotations and other references, right down to the correct page. Please format your references as described in the handout Citing and Formatting References.

Hints

Keep track of your references as you use them. Add the full citation to a reference list. You can use a computer file, index cards, or some other medium to record the citation. If you do not do this, you will find reconstructing the list of references, and what you used each for, very difficult!

As always, if you have questions, please see the instructor, or send me email. I am here to help you.

What to Turn In

Please turn in a printed copy of your paper. Also, submit your Word file (DROPBOX), named "SCIM Term Paper.doc", in any of Word version. Warning: do not submit a file in PDF format!
**Grading**

The distribution of points for your term paper is as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>Possible Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content</td>
<td>100</td>
</tr>
<tr>
<td>Proper citations for controversial or detailed facts</td>
<td>15</td>
</tr>
<tr>
<td><strong>At least 15 references in bibliography</strong></td>
<td>15</td>
</tr>
<tr>
<td>Title page</td>
<td>1</td>
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<tr>
<td>Introduction</td>
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<td>Basic description</td>
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<tr>
<td>Discussion</td>
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</tr>
<tr>
<td>Conclusions</td>
<td>15</td>
</tr>
<tr>
<td>References</td>
<td>19</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>220</strong></td>
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</table>

When you submit your paper, we will look both at content and how you present it. In particular, we will deduct one point for every grammar error that your paper contains. You can use the Word grammar checker with all style and grammar options checked (except "use of first person", because you can use "I" or "we" in the paper) to find possible grammar errors; but it does make mistakes, flagging perfectly good sentences as ungrammatical (especially passive sentences), and missing grammatically incorrect sentences. So please check carefully.

**Important Note**

Plagiarism will be penalized (the practice of taking someone else's work or ideas and passing them off as one's own.)

If your paper have less than 10%, there is no penalization

If your paper have between 10.1% and 15% a 10% deduction of your grade will be applied

If your paper have between 15.1% and 25% a 20% deduction of your grade will be applied

Anything higher than 25.1% but less than 50% will get 60% penalty

Higher number of 50% will be a 0 in your paper.