

# Advanced Quality Management and Engineering for Business Processes

EIN 6176 Section 2609

**Class Periods:**

**Location:** Orlando

**Academic Term:** Fall 2016

## **Instructor:**

Alfredo Garcia

[alfredo.garcia@ufl.edu](mailto:alfredo.garcia@ufl.edu)

(434) 466-8309

Office Hours: by appointment

## **Teaching Assistants:**

Please contact through the Canvas website

- Roshanak Mohammadivojdan ([rmohammadivojdan@ufl.edu](mailto:rmohammadivojdan@ufl.edu))

## **Course Description**

Philosophy of continuous improvement and methodology for applying team problem solving to manufacturing and service industries. Hands-on application of basic statistical quality tools; introduction to quality function deployment; concurrent engineering; business process reengineering; process analysis; benchmarking. Team project

## **Course Pre-Requisites / Co-Requisites**

Introductory statistics or consent of instructor

## **Course Objectives**

To provide students with introductory knowledge of statistical learning techniques used in the design, control and improvement of quality in processes with observable output variation. The course includes an introduction to design of experiments and response surface methods. The objectives are accomplished by a combination of lectures, in class interaction with test-cases, homework and a final team project.

## **Materials and Supply Fees**

None

## **Required Textbooks and Software**

- "Introduction to Statistical Quality Control" D. Montgomery, Wiley (2009) 6th Edition.
- "An Introduction to Statistical Learning: with Applications in R" G. James, D. Witten, T. Hastie, R. Tibshirani, Springer (2013) First edition (available online).
- Students must download a copy of the open source software R (see <http://www.r-project.org>) (Links to an external site.)

## **Recommended Materials**

None

## **Course Schedule**

Month 1: Course Overview. Review of Statistical Inference. Process Control. Shewhart Control Charts. Relevant Text Chapters: Chapters 2, 4 and 6.

Month 2: Control Charts for Attributes. Moving Average Control Charts. Cumulative Sum Control Charts. Relevant Text Chapters: Chapters 7 and 9.

Month 3: Multivariate Process Monitoring. Review of Linear Regression. Classification. Relevant Text Chapters: Chapters 11 and 13. Quiz #1

- Month 4: Design of Experiments. Introduction to Response Surface Methods. Acceptance Sampling. Sampling Inspection by Attributes. Relevant Text Chapters: Chapter 14, 15
- Month 5: Sampling Inspection by Variables. Relevant Text Chapters: Chapter 16. Quiz # 2.

### **Attendance Policy, Class Expectations, and Make-Up Policy**

Attendance is mandatory. Exemptions can be arranged in case of conflicts.

### **Evaluation of Grades**

Assignment	Total Points	Percentage of Final Grade
Homework Sets (5)	100 each	50%
Quizzes (2)	100 each	20%
Final Project	100	30%

### **Grading Policy**

Percent	Grade	Grade Points
92.0 - 100	A	4.00
90.0 - 92.0	A-	3.67
88.0 - 89.9	B+	3.33
83.4 - 87.9	B	3.00
80.0 - 83.3	B-	2.67
76.7 - 79.9	C+	2.33
73.4 - 76.6	C	2.00
70.0 - 73.3	C-	1.67
66.7 - 69.9	D+	1.33
63.4 - 66.6	D	1.00
60.0 - 63.3	D-	0.67
0 - 59.9	E	0.00

More information on UF grading policy may be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

### **Students Requiring Accommodations**

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, <https://www.dso.ufl.edu/drc>) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

### **Course Evaluation**

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu/evals>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.

### **University Honesty Policy**

UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (<https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to

report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

### ***Campus Resources:***

#### *Health and Wellness*

##### **U Matter, We Care:**

If you or a friend is in distress, please contact [umatter@ufl.edu](mailto:umatter@ufl.edu) or 352 392-1575 so that a team member can reach out to the student.

**Counseling and Wellness Center:** <http://www.counseling.ufl.edu/cwc>, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

##### **Sexual Assault Recovery Services (SARS)**

Student Health Care Center, 392-1161.

**University Police Department** at 392-1111 (or 9-1-1 for emergencies), or <http://www.police.ufl.edu/>.

#### *Academic Resources*

**E-learning technical support**, 352-392-4357 (select option 2) or e-mail to [Learning-support@ufl.edu](mailto:Learning-support@ufl.edu).  
<https://lss.at.ufl.edu/help.shtml>.

**Career Resource Center**, Reitz Union, 392-1601. Career assistance and counseling. <https://www.crc.ufl.edu/>.

**Library Support**, <http://cms.uflib.ufl.edu/ask>. Various ways to receive assistance with respect to using the libraries or finding resources.

**Teaching Center**, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring.  
<https://teachingcenter.ufl.edu/>.

**Writing Studio, 302 Tigert Hall**, 846-1138. Help brainstorming, formatting, and writing papers.  
<https://writing.ufl.edu/writing-studio/>.

**Student Complaints Campus:** [https://www.dso.ufl.edu/documents/UF\\_Complaints\\_policy.pdf](https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf).

**On-Line Students Complaints:** <http://www.distance.ufl.edu/student-complaint-process>.