

FDSCTE 5310 - FOOD QUALITY ASSURANCE - 2017

Instructor: M. Monica Giusti (.6)

Office: Parker 335, Office hours: open door policy and by appointment

TAs: Geoffrey Dubrow (.7), Peipei Tang (.451), Yucheng Zhou (.1140), Xiaoyi Zhu (.1002)

I. COURSE DESCRIPTION

Food Quality Assurance - 3 credits.

2 55-min lectures per week (Parker 118 & 114, Tue and Thu 8 – 8:55 am)

Lab Sections (Parker 124 / 136): Thu 10:35-12:25 am, OR Thu 1:50-3:40pm

Pre-requisite: basic knowledge of food processing, math and statistics are required.

II. GENERAL PURPOSE

To provide students with knowledge of quality control concepts and procedures that allow for production of high quality products with safety as a priority.

III. LEARNING OBJECTIVES

To understand and gain experience in the process of food quality assurance

- To become familiar with quality assurance and safety systems
- To become familiar with basic statistical tools for sampling and description
- To become familiar with basic statistical tools for data analyses and sample quality estimation and/or prediction
- To experience the process of careful and detailed record keeping, necessary for quality assurance.
- To become familiar with analytical and sensory techniques for monitoring the quality of foods
- To encourage student critical thinking on quality issues

IV. COURSE CONTENTS

1. Introduction,
 - Quality Control and Quality Assurance Definitions
 - Importance of Quality Assurance Programs
 - SOPs: Standard Operating Procedures
2. Statistical Tools for Quality Assurance
 - Data Collection and Organization – The normal distribution
 - Sampling Criteria and Sampling Plans
 - Traceability and recalls
 - Descriptive Statistics
 - Statistical Inference and Prediction
3. Use of Control Charts in Quality Assurance
 - Variables Control Charts
 - Attributes Control Charts
4. Probability

- Probability with the Binomial and Poisson Distributions
 - Operating Characteristics Curve (OC)
 - Probability with the Normal Distribution
5. Product Specifications and Process Capability
 - Developing Product Specifications
 - Process Capability
 - Process Capability Index
 6. Quality Control and Analytical Techniques: Product Performance Testing
 - Analytical Techniques For Product Evaluation
 - Quality of an Analytical Procedure
 7. Sensory Analyses for Evaluation of Food Quality
 - Difference tests and data analyses
 - Hedonic tests and data analyses
 - Descriptive tests and data analyses
 8. Cleaning and Sanitation for Quality and Safety
 9. Quality Control / Quality Assurance Systems
 - ANSI: American National Standards Institute, GMP: Good manufacturing practices, HACCP – Hazard Analysis Critical Control Points and FSMA, Malcolm Baldrige National Quality Awards, TQM: Total Quality Management, Six Sigma, The ISO 9000 Quality System Standards.

V. GRADING

Examinations (3 exams)	45 %
Laboratory Reports	40 %
Quizzes and homework	10 %
Class (&Lab) participation and attendance	5%

There will be a total of 4 Examinations: 3 partial exams and 1 final, each one can represent 15% of the final grade. Only 3 exam grades will be used towards your final grade, making up a total of 45%. There will be no make-up exams, if you miss one exam, the grade on the other 3 will be used. You can choose to take the 3 partial exams and skip the final. If you take the final, the grade in the final exam will replace the lowest partial exam grade.

VI. Course Policies:

- Attendance: Students in the class are expected to show interest and commitment through class participation. Laboratory attendance is mandatory. Acceptable reasons for missing class are sickness, family emergencies, or job interviews. If it is necessary for you to miss a laboratory session, contact the instructor in advance. You are responsible for learning the materials missed.
- Participation in class discussions: Students are expected to play an active role in the learning process and are encouraged to ask questions and provide input, feedback or opinions on topics discussed. Read the class notes and laboratory handouts ahead of time and come prepared to learn and participate in class. Class and laboratory participation will be monitored and graded.
- Exercises and reports: Homework assignments should be individual, while lab reports will be by

teams. Instructions will be provided in class and posted in Carmen. All assignments should be uploaded through the Carmen dropbox by the specified due date.

- Due dates: All assignments and term report must be uploaded into Carmen's dropbox by the specified date and time. Assignments received on the following day will have a 20% deduction on the grade. Each additional day late will be an additional 20% deduction.

VII. READING MATERIALS

Textbook: Strongly recommended (electronic version available through the library):

Hubbard, Merton R. 2003. *Statistical Quality Control for the Food Industry*. 3rd edition. Chapman and Hall, New York. (2nd Ed. From 1996 is also acceptable, both sold by Springer.com)

Other recommended reading materials:

Alli, Inteaz. 2004. *Food Quality Assurance, Principles and Practices*. CRC Press.

Code of Federal Regulations. 1999. Title 21 - Parts 0-99, 100-169, and 170-199; Title 7 - Parts 53-209; Title 9 - Parts 100- end. U.S. Government Printing Office, Washington, DC.

Gould, W.A. and Gould, R.W. 1993. *Total Quality Assurance*. Second Edition. CTI Publications. MD.

Kateman, G. and Pijpers, F.W. 1981. *Quality control in analytical chemistry*. In *Chemical Analysis Vol 60*. (Ed. P.J. Elving, J.D. Winefordner, I.M. Kolthoff). Wiley and Sons, New York.

Montgomery, D.C. 2001. *Introduction to Statistical Quality Control*. 4th edition. Wiley & Sons, NY.

Ryan, T.P. 1989. *Statistical methods for quality improvement*. Wiley and Sons. New York.

Vasconcellos, J. Andres. 2003. *Quality Assurance for the Food Industry: A Practical Approach*. CRC Press, California, USA - 448 Pages

Electronic resources:

A vast array of information can be obtained through the internet. Many official organizations have web sites with information about quality control, quality assurance, quality programs. If you want to use the internet as a source of information, make sure that the page has been posted by a reliable source. Excellent sources include FDA (www.fda.gov), USDA (www.usda.gov/usda.htm), Institute of Food Technologists (www.ift.org/index.shtml), and other government pages such as the code of federal regulation online: CFR (<http://www.access.gpo.gov/nara/cfr/>).

VIII. ACADEMIC MISCONDUCT

Academic misconduct is defined in the Code of the Student Conduct and the Rules of the University Faculty (http://studentaffairs.osu.edu/info_for_students/csc.asp & <http://www.acs.ohio-state.edu/offices/oa/procedures/1.0.html>). Suspected academic misconduct will be referred automatically to the Committee on Academic Misconduct as required by Faculty Rules.

IX. DISABILITY

Students with disabilities that have been certified by the Office for Disability Services will be appropriately accommodated and should inform the instructor as soon as possible of their needs. The Office for Disability Services is located in 150 Pomerene Hall, 1760 Neil Avenue; telephone 292---3307, TDD 292---0901; <http://www.ods.ohio-state.edu/>.