ACKNOWLEDGEMENT

UBC's Point Grey Campus is located on the traditional, ancestral, and unceded territory of the xwməθkwəy̓əm (Musqueam) people. The land it is situated on has always been a place of learning for the Musqueam people, who for millennia have passed on their culture, history, and traditions from one generation to the next on this site.

COURSE INFORMATION

Course Title	Course Code Number	Credit Value
Advanced Food Safety and Food Quality Management Systems	**FOOD 516**	**3**

COURSE BACKGROUND

Currently the food industry in the world and in Canada is undergoing a rapid upgrade of their food safety and food quality management systems, these new enhancements are customer driven and based in global food safety standards as set forth by the Global Food Safety Initiative (GFSI) certified schemes. Food industries that embrace any of the GFSI schemes need to implement and pass a third-party audit to evaluate compliance, if the company is successful then it is certified.

Attaining global certification and maintaining these high expectation levels are now a requirement to do business. As a food safety and food quality professional having a good set of skills and a strong knowledge base on the GFSI systems is not only necessary, but in today's employment market a unique advantage.

Professionals in the food industry are catching up to these new systems; but currently the courses available to them are at best a descriptive overview of the GFSI scheme codes, lacking tools for adequate interpretation and application of the codes requirements into procedures and systems that are industry and product specific, moreover, that can be translated into products that are safe and quality compliant.

Major retailers like Wal-Mart, COSTCO, Loblaw's, Sobey's, Safeway, are now requiring their food suppliers

to be GFSI certified, this trend continuous to increase.

GFSI schemes are CODEX HACCP based and this methodology is used both to design and develop the food safety and the food quality management system as well as GMP's and pre-requisite programs, therefore manufacturing or food handling sites are responsible for making it product, process and plant specific. This is not an easy task, students learning these skills will be definitely at the forefront of the industry, from CEO, CFO, and other job positions, they all share some degree of responsibility under these total management systems.

This course is also informed by UN/FAO guidelines for food safety, European Union guidelines for food safety, The National Advisory Committee on Microbiological Criteria for Food (NACMCF), CFIA and Safe Food for Canadians Act, SQFI auditing guidelines, and ISO 19011:2018 Guidelines for auditing management systems. The SQF code is the most widely used in the food industry in North America.

PREREQUISITES

Strong knowledge of hazard analysis, risk assessment and risk management (HACCP Codex Alimentarius), food microbiology, toxicology, statistics for food safety and food quality control and continuous improvement (KPI's, SPC). Some knowledge of food sensory analysis is also recommended.

COREQUISITES

Toxicology, food microbiology, process engineering. These can add important contextual knowledge.

CONTACTS

Course Instructor(s)	Contact Details	Office Location	Office Hours
Alberto Mendoza Galina	agalina@mail.ubc.ca		only with previous appointment

COURSE INSTRUCTOR BIOGRAPHICAL STATEMENT [OPTIONAL]

UBC Land Food Systems, Food Science Master Program Alberto Mendoza-Galina, MA, BSc., Biochemist engineer.

GFSI Certified auditor, HACCP certified by the UN/FAO and the USDC/NMFS. I have more than 25 years of progressive experience in the areas of food safety and food quality management systems, my experience has been as a consultant, educator and certified auditor in diverse industry sectors, from primary production, slaughterhouses, food processing and manufacturing, to distribution centres and institutional food service establishments including, hotels, fast food and franchises in Canada, USA, Mexico and the Kingdom of Saudi Arabia.

I continued working in developing new food safety and food quality standards as part of the technical and auditing group at Merieux Nutrisciences Certification Services, with the Americas head office located in Chicago Il, USA, company I have been working with for the past 14 years, I also worked developing the sanitary regulatory standards for food services for the tourism sector in Mexico.

I am an expert in designing; validating and implementing tailored food safety and food quality management systems. My professional experience includes working with small family businesses up to large corporations, like McDonalds, Burger King, Subway, Costco, Wal-Mart, YUM Brands (Pizza Hut, Taco Bell, A&W) to name a few, closely working with their food and primary packaging suppliers. I have also worked in the nutritional supplements and natural products industry. I have an expertise in hazard analysis, risk assessment and risk management, particularly dealing with manufacturing sites of high-risk RTE products.

I am personally interested in local primary production versus industrial farming; minimizing the usage of additives in processed foods; and finding ways to produce foods in a sustainable community framework.

OTHER INSTRUCTIONAL STAFF

Every term I will have guest-speakers, two GFSI auditors that will share their experiences, specifically their findings during auditing food manufacturing sites; and one to two additional speakers either from the food

industry or regulatory agencies. The food industry speakers usually talk about the quality and food safety challenges they encounter specifically in their processes and products, regulatory speakers deal with topics like how they carry out inspections, interpretation of the regulations and so on. These are part of our course but will have no bearing on your scoring.

COURSE STRUCTURE AND LEARNING ACTIVITIES

Location: Room 30, FHN Building 2205 East Mall

This is an intensive student driven course. Every week students will participate in making summaries, debating and reaching conclusions for every topic of study that they have previously researched. The summaries will become the body of knowledge of the course and the exams.

Students will be compelled to work in groups to understand the steps to design and implement GMP's and PP's with a hazard analysis and risk assessment approach and conciliate their findings to the requirements of the SQF code for specific food processes, and build up the guidelines to complete the implementation of these systems in case scenarios, writing policies, building programs, procedures, instructions and records. This will provide insight into potential avenues to evaluate compliance during an audit.

Students will be divided into groups, and given assignments to perform a third-party audit of specific food facility case scenarios based on real industry experiences. Upon completion, students will write identifying the deviations observed against the code requirements and how these could be resolved. For every element of the code that is deemed compliant or non-compliant students will have to provide justification and evidence to support the scoring and findings.

SCHEDULE OF TOPICS

Course outline and details

Research/reading: What is GFSI? What are the schemes under GFSI? Review HACCP from Codex Alimentarius and element 2.4 Food Safety Plan from the SQF code version 9.

1. Introduction to GFSI and revision of food safety and HACCP. GFSI schemes and quality management systems development using the HACCP methodology.

   Research/reading: ISO 19011:2018 Guidelines for auditing management systems and SQFI Auditing guidelines, types of audit in the food industry (internal audit, secondary and third-party audits).

2. What is an audit? Auditing principles and ethics when conducting an audit, purpose of the audits, steps of an audit, preparation for an audit, auditing methodology and how to conduct interviews as an

evidence gathering tool. Internal audit, second party audit, third party audit, product audits, HACCP audits and certification audits.

External auditing protocols and criteria, based on SQF and BRC code requirements, objectivity, auditor tools, document review. Plant or facility observations. Writing evidence-based report of findings for compliance and non-compliance.

Research/reading: Hazard analysis and risk assessment, risk management, hazard risk assessment matrix for risk categorization and management. HACCP Codex Alimentarius and, FSMA and PCHF.

3. Hazard analysis and risk assessment, auditing approach using hazard analysis and risk assessment focusing on the product(s) manufactured at the site (auditee). Understanding how HACCP (CODEX Alimentarius) is the backbone of GFSI schemes and food safety management plans, relationship between a well-made HACCP plan to GMP's and PP's. Conciliation between documented procedures (say what you do) and on the floor observations and interviews (Do what you say) and records, showing manufacturing site's behaviour across time (Be ready to prove it). Food safety and food quality 360 degrees.

   How thinking on the manufacturing site's and its products potential hazards and risks informs the auditor when conducting and audit.

   Reviewing and approving corrective actions and root cause analysis from the audited sites.

   Verification versus validation.

   HACCP difference between CFIA and the CODEX Alimentarius. FSMA, PCHF food safety plan.

   Research/reading: SQF Quality Code, edition 9.

4. GFSI, using HACCP methodology to develop the food quality management system. This is a HACCP with a quality scope. Quality control points, sensory analysis and developing quality standards for food products.

   HACCP plan design, relationship between quality procedures and GMPs, how to build a HACCP plan focused on quality attributes.

   Identification of QCP's (Quality Control Points). Verification versus validation for QCP's.

   Research/reading: SQF Food Safety Code for Manufacturing, module 11, edition 9, and Module 2.

5. SQF Food Safety Code for Manufacturing, these are known as the system elements and these drive the implementation and management of the food safety and the food quality management system. Every element is also comprised by a number of sub-elements

   Management commitment, this is not only about having documents of vision and mission statements, it is actually one of the elements that can only be assessed at the end of the audit.

Document control and records. Understanding how important are documents, like general statements, personnel guidelines, policies, SOP's, instructions in shaping the site's culture and behaviour.

Specification and product development.

Food safety system.

SQF system verification, this is the internal audit of the entire system, including management commitment.

Product identification, trace, withdrawal and recall.

Food defense and food fraud.

Allergen management.

Training.

Research/reading: SQF Food Safety Code for Manufacturing, edition 9. Module 11: Good Manufacturing Practices for Processing of Food Products.

6. SQF Food Safety Code for Manufacturing, module 11: Good Manufacturing Practices for Processing of Food Products, beyond the minimum regulatory requirements, this class takes a deep dive into understanding how the HACCP plan must inform GMP's and PP's and how this is taken to a whole new different level in order to comply with any of the GFSI schemes codes and their intent.

   Site location and construction.

   Construction of premises and equipment.

   Personnel hygiene and welfare.

   Personnel processing practices.

   Water, ice, and air supply.

   Storage and transport.

   Separation of functions.

   On-site laboratories.

   Waste disposal.

   Exterior.

7. Designing and implementing an effective internal audit system based on GFSI food safety and food quality management systems. Using audit findings to enhance the continuous improvement system.

   Corrective actions or remediation versus improvement.

Design, development and implementation of a successful food safety and food quality culture for all employees and management in a food facility based on education, training and evaluation of training techniques.

8. Auditing examples, evaluation of case scenarios and assigning critical, major or minor non-conformances to specific examples of processes and plant behaviour, providing adequate and sufficient evidence to support scoring and findings.

If any changes to the program should occur students will be notified via email or in class prior to changes implementation.

Specific dates and schedules will be discussed in our first class.

LEARNING OUTCOMES

The objective of this course is to familiarize students with food safety and quality principles of the GFSI system schemes, in particular with the SQF code, its interpretation and implementation. Students will learn and apply auditing principles for internal, second and third-party audits and in particular the guidelines for auditing the SQF code.

Upon successful completion of this course students should be able to:

- Explain the concept of GFSI and learning principles and techniques for auditing GFSI schemes
- Gain understanding of the SQF and BRC code requirements and how to implement these systems in food plants to attain GFSI certification
- Work within a total quality management system to produce safe and quality food products that are compliant to a GFSI scheme code and local food legislation
- Work in a continuous improvement environment using a dynamic system of key indicators
- Audit food facilities and processes based on GFSI schemes, particularly SQF (Safe Quality Food).

LEARNING MATERIALS

References:

HACCP and GMPs, microbiological risk analysis and monitoring by Codex Alimentarius, UN/FAO
http://www.fao.org/docrep/005/Y1579E/y1579e02.htm#TopOfPage

http://www.codexalimentarius.org/input/download/.../23/CXP_001e.pdf

SQFI, SQF Food Safety Code for Manufacturing, module 11: Good Manufacturing Practices for Processing.

SQF Quality Code edition 9 latest version.

ISO 22000:2005 Food Safety Management

CFIA food safety enhancement program, http://inspection.gc.ca/food/safe-food-production-systems/food-safety-enhancement-program/program-manual/eng/1345821469459/1345821716482

FSMA, HARPC http://www.fda.gov/Food/GuidanceRegulation/FSMA/ucm334115.htm

ASSESSMENTS OF LEARNING

A mid-term exam will be performed on the principles learned usually a combination of multiple choice and true false statements	40 %
Final exam is open book, students will evaluate and score NC's based on specific food industry case scenarios and write their evidence/justification for the NC scoring	60%
Total Score	100%

Any changes to scoring will be discussed in class with the students prior to implementation of changes.

UNIVERSITY POLICIES

UBC provides resources to support student learning and to maintain healthy lifestyles but recognizes that sometimes crises arise and so there are additional resources to access including those for survivors of sexual violence. UBC values respect for the person and ideas of all members of the academic community. Harassment and discrimination are not tolerated nor is suppression of academic freedom. UBC provides appropriate accommodation for students with disabilities and for religious observances. UBC values academic honesty and students are expected to acknowledge the ideas generated by others and to uphold the highest academic standards in all of their actions.

Details of the policies and how to access support are available on the UBC Senate website.

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