

# FOS 6218 - Food Safety Systems

Fall 2022

2 Credit Hours

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## Course Hours & Location:

TR 5<sup>th</sup> Period (11:45 am to 12:35 pm)

Location: McCarty B 3096

## Instructors:

**Dr. Soohyoun (Soo) Ahn** (course organizer)

Food Science and Human Nutrition

Room 104A, Bldg. 120

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Phone: 352-294-3710

Office hours: M/W 9:30 to 10:30 am (virtual), <https://ufl.zoom.us/j/2231135293>

T/R 9:30 to 10:30 am (in-person)

all other times – by appointment only

**Dr. Renee Goodrich-Schneider**

Food Science and Human Nutrition

Room 349, FSHN Bldg.

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Phone: 352-294-3726

Office hours: W/R 1:00 to 3:00 pm, all other times – by appointment only.

## Course Description:

This course is designed to cover 1) current issues in food supply chain including security and safety in domestic and international food industry, 2) various food safety control systems, 3) principles of HACCP and FSMA Preventive controls. The course also provides hands-on practice in developing a food safety plan.

## Course Objectives and Learning Goals:

After completing this course, students should be able to:

1. Recognize the importance of food safety to protect public health.
2. Identify the types of hazards, and list the factors promoting those hazards.
3. Describe the importance of food safety in domestic and international food trade.
4. List and describe 7 principles of the HACCP system as a food protection tool.
5. Discuss the importance of risk analysis in food safety and how risk analysis can be done in food industry.

6. Identify hazards and develop process preventive controls for FSMA Food Safety Plan with a given food product example.
7. List 8 major food allergens identified by FDA and develop adequate measures to control food allergens.
8. Choose sanitation preventive controls to avoid cross-contamination and ensure sanitary environment in food processing facility
9. Develop a comprehensive food safety plan based on risk analysis and preventive controls under the FSMA Preventive Controls for Human Food Rule.
10. Describe the role of federal, state and local jurisdictions in regulating and monitoring food safety and security assurance.

### **Textbook and Additional Reading Materials:**

There is no required textbook for this course. However, following books are recommended as good resources for this course:

- FSMA and Food Safety Systems (Barach), Wiley
- HACCP: A Practical Approach, 3<sup>rd</sup> Ed. (Moltimore and Wallace), Springer
- Food Safety Management (King), Springer

These books can be accessed through library course reserves.

Supplemental reading materials will be posted on Canvas through each module page.

These materials include, but are not limited to 1) articles from recent literature; 2) regulations and/or guidance from government agencies (e.g. USDA FSIS and FDA); and 3) publications from food safety organizations (e.g. GFSI, FSSC).

Sample of these additional reading materials are listed below:

- "Microbiological Criteria: Principles for their establishment and application in food quality and safety" 2020. L Perez-Lavalle, E Carrasco, and A Valero. 2020. Italian Journal of Food Safety, 9:8543. (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7154603/>)
- "Writing Sanitation Standard Operating Procedures (SSOPs)" 2018. KE Kaylegian, Penn State Extension. (<https://extension.psu.edu/writing-sanitation-standard-operating-procedures-ssops>)
- "Sanitation Standard Operating Procedures" 2019. USDA Food Safety and Inspection Service (FSIS). ([https://www.fsis.usda.gov/wps/wcm/connect/4cafe6fe-e1a3-4fcf-95ab-bd4846d0a968/13a\\_IM\\_SSOP.pdf?MOD=AJPERES](https://www.fsis.usda.gov/wps/wcm/connect/4cafe6fe-e1a3-4fcf-95ab-bd4846d0a968/13a_IM_SSOP.pdf?MOD=AJPERES))
- "Understanding the Basics of Food Safety Regulations" 2018. D Detwiler, Northeastern University. (<https://www.northeastern.edu/graduate/blog/understanding-basics-food-safety-regulations/>)

- "A Historical Look at Food Safety" 2020. IFT Brain Food Blog (<https://www.ift.org/news-and-publications/blog/2019/september/a-historical-look-at-food-safety>)
- "Hazard Analysis and Risk-based Preventive Controls for Human Food: Draft Guidance for Industry" Chapter 1. The Food Safety Plan. 2018. FDA (<https://www.fda.gov/media/99547/download>)
- "FSMA Final Rule on Produce Safety" 2020 FDA. (<https://www.fda.gov/food/food-safety-modernization-act-fsma/fsma-final-rule-produce-safety>)
- "Auditing Food Safety" 2018. IFT. (<https://www.ift.org/news-and-publications/food-technology-magazine/issues/2018/april/columns/food-safety-and-quality-auditing-food-safety>)
- "The Role of Auditing, Food Safety, and Food Quality Standards in the Food Industry: A Review" 2017. KV Kotsanopoulos and IS Arvanitoyannis. Comprehensive Reviews in Food Science and Food Safety, 16(5): 760-775 (<https://onlinelibrary.wiley.com/doi/full/10.1111/1541-4337.12293>)

#### Course Format:

Students will acquire knowledge of the current food safety issues and various systems to control these issues through the lectures, class discussions, reading, and assignments. In case the instructor has health issue or feels sick, the class can be temporarily moved to online (through Zoom).

#### Instruction Method:

The course is divided into 10 modules. Each week, students will get access to a new page that contains materials for the given week. Each page consists of a link to video lectures, presentation slides and handouts, recommended reading materials, and additional supplementary materials (videos and/or readings) relevant to the module.

The best way to study the course materials in each module is to begin with the learning goals. It will help you understand the important learning points for that specific module. Next, attend class. I recommend to print out the presentation handout prior to the lecture and take notes during the lecture.

Presentation slides is a simple summary of what is being explained in the lecture. Much more details are explained in the lecture, and it will be helpful to take notes during the lecture.

Then, read the assigned reading materials or watch the supplementary videos that are posted (if any).

These materials will provide details and support the lecture and expand your scope of learning. This course does not have a required textbook, but has recommended textbooks, which are electronically available through the course reserves.

**Grading:**

In-class exams (3)*	60% (20% each)
Final Group Project (in lieu of final exam)	
- Process PC	30%
- Sanitation PC	5%
- Food allergen PC	5%
<b>Total</b>	<b>100%</b>

\*Each In-class exam will cover approximately 1/3 of the course materials and be equally weighted.

**Grading scale:**

Grade	A	B+	B	B-	C+	C	C-	D+	D	D-	E
Course Average %	89.5-100.0	86.5-89.4	82.5-86.4	79.5-82.4	76.5-79.4	72.5-76.4	69.5-72.4	66.5-69.4	62.5-66.4	59.5-62.4	<59.5

For information on current UF policies for assigning grade points, see <https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/>.

**Group Project Details:**

Students will be assigned to work in a group of 2-4 (depending on the final enrollment number). Each group will be given a specific food product scenario, and work together to develop a Food Safety Plan under the FSMA Preventive Controls for Human Food Rule. This will be an iterative process that will result in a comprehensive overview of the Food Safety Plan development and maintenance, which is a major learning objective for this course.

Each group is encouraged to organize an online meeting or use discussion section on Canvas. If you need any assistance in organizing an online meeting, ask for help to instructors.

**Policy regarding Make-up exam / Late work submission:**

Each exam will be given as scheduled in course outline (see below). Students must take the exams on the day scheduled. Make-up exams will be allowed only for the case of verifiable emergencies or legitimate reasons (illness, family emergency). In those excusable circumstances, students should notify the instructor PRIOR TO the scheduled exam and provide proper proof afterwards. Instructor will refuse to give a chance to take a make-up exam unless a student provides the proof that the absence was excusable. All make-up exams MUST be taken within two days of the scheduled exam, whenever possible.

Due date will be given in advance for the project. All work must be completed by the designated due dates. No late work will be accepted unless arrangement is made with the instructor beforehand.

### **COVID-19 related Classroom Policy (IMPORTANT!):**

In response to COVID-19, the following practices are in place to maintain your learning environment, to enhance the safety of our in-classroom interactions, and to further the health and safety of ourselves, our neighbors, and our loved ones.

- If you are not vaccinated, get vaccinated. Vaccines are readily available at no cost and have been demonstrated to be safe and effective against the COVID-19 virus. Visit this link for details on where to get your shot, including options that do not require an appointment: <https://coronavirus.ufhealth.org/vaccinations/vaccine-availability>. Students who receive the first dose of the vaccine somewhere off-campus and/or outside of Gainesville can still receive their second dose on campus.
- You are welcome to wear approved face coverings during class and within buildings even if you are vaccinated. Please continue to follow healthy habits, including best practices like frequent hand washing.
- If you are sick, stay home and self-quarantine. Please visit the UF Health Screen, Test & Protect website about next steps, retake the questionnaire and schedule your test for no sooner than 24 hours after your symptoms began. Please call your primary care provider if you are ill and need immediate care or the UF Student Health Care Center at 352-392-1161 (or email [covid@shcc.ufl.edu](mailto:covid@shcc.ufl.edu)) to be evaluated for testing and to receive further instructions about returning to campus. UF Health Screen, Test & Protect offers guidance when you are sick, have been exposed to someone who has tested positive or have tested positive yourself. Visit the UF Health Screen, Test & Protect website for more information.
  - Course materials will be provided to you with an excused absence, and you will be given a reasonable amount of time to make up work.
  - If you are withheld from campus by the Department of Health through Screen, Test & Protect you are not permitted to use any on campus facilities. Students attempting to attend campus activities when withheld from campus will be referred to the Dean of Students Office.
- Continue to regularly visit [coronavirus.UFHealth.org](https://coronavirus.UFHealth.org) and [coronavirus.ufl.edu](https://coronavirus.ufl.edu) for up-to-date information about COVID-19 and vaccination.

### **In-Class Recording Policy:**

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in

preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A “class lecture” is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To “publish” means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person, including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

#### **Attendance Policy:**

Requirements for class attendance and make-up exams, assignments and other work are consistent with university policies that can be found at: <https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/>.

#### **Technology requirements:**

Students must use their Gatorlink email account for this course. Students are recommended to check their email account daily for the duration of the course.

For issues with technical difficulties for E-learning in Canvas, please contact the UF Help Desk at:

- [learning-support@ufl.edu](mailto:learning-support@ufl.edu)
- (352) 392-4357 - select option 2
- [lss.at.ufl.edu](https://lss.at.ufl.edu)

#### **Communication Policy:**

Students will have multiple channels to communicate with instructors:

- E-mails (either direct emailing or through Canvas mail)

- Canvas course page - Q&A forum in Discussion
- After the lecture, instructors will be available to take any questions

All members of the class are expected to follow rules of common courtesy in all email messages, threaded discussions, and chats.

### **Academic Honesty:**

Student Honor and Conduct Code from University of Florida will be enforced on the case of infringement of academic integrity, including **plagiarism, cheating and prohibited collaboration or consultation.**

Details can be found at: <https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>.

### **Disability Clause:**

The Disability Resource Center provides services to students with physical, learning, sensory or psychological disabilities. These services include registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, and mediating any other disability-related issues. Disability Resource Center can be reached at 352-392-8565 or [accessUF@ufsa.ufl.edu](mailto:accessUF@ufsa.ufl.edu), and is located at 0001 Building 0020 (Reid Hall). Detailed information is available at: <https://disability.ufl.edu/>.

### **Software Policy:**

All faculty, staff, and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

### **Course Evaluation:**

Student assessment of instruction is an important part of efforts to improve teaching and learning. At the end of the semester, students are expected to provide feedback on the quality of instruction in this course using a standard set of university and college criteria. Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at: <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at: <https://gatorevals.aa.ufl.edu/public-results/>

### Online Security and Privacy Protection:

It is critical to protect your data and privacy. Since we use several online tools for this course (Canvas, Honorlock, Zoom), you should be mindful of protecting your own data.

- Do not share your personal information online.
- Do not share the password for zoom lectures (We don't want any stranger in our virtual classroom!)
- We will not record the zoom lectures, but if there is any need to record the lecture, you will be notified so you could turn off your camera if you don't want to get recorded.

For information about the privacy policies of the tools used in this course, see the links below:

- Instructure (Canvas)
  - [Privacy Policy](#)
  - [Accessibility](#)
- Zoom
  - [Privacy Policy](#)
  - [Accessibility](#)

### Campus Resources for Students:

Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

#### Health and Wellness:

- U Matter, We Care: If you or someone you know is in distress, please contact [umatter@ufl.edu](mailto:umatter@ufl.edu), 352-392-1575, or visit [umatter.ufl.edu/](http://umatter.ufl.edu/) to refer or report a concern and a team member will reach out to the student in distress.
- Counseling and Wellness Center: Visit [counseling.ufl.edu/](http://counseling.ufl.edu/) or call 352-392-1575 for information on crisis services as well as non-crisis services.
- Student Health Care Center: Call 352-392-1161 for 24/7 information to help you find the care you need, or visit [shcc.ufl.edu/](http://shcc.ufl.edu/).
- University Police Department: Visit <https://police.ufl.edu/> or call 352-392-1111 (or 9-1-1 for emergencies).
- UF Health Shands Emergency Room/Trauma Center: For immediate medical care, call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608; <https://ufhealth.org/emergency-room-trauma-center>.



## Academic Resources

- E-learning technical support: Contact the UF Computing Help Desk at 352-392-4357 or via e-mail [athelpdesk@ufl.edu](mailto:athelpdesk@ufl.edu).
- Career Connections Center: Reitz Union Suite 1300, 352-392-1601. Career assistance and counseling services; <https://career.ufl.edu/>.
- Library Support: various ways to receive assistance with respect to using the libraries or finding resources; <https://cms.uflib.ufl.edu/ask>
- Teaching Center: Broward Hall, 352-392-2010 or to make an appointment 352-392-6420. General study skills and tutoring; <https://teachingcenter.ufl.edu/>
- Writing Studio: 2215 Turlington Hall, 352-846-1138. Help brainstorming, formatting, and writing papers; <https://writing.ufl.edu/writing-studio/>
- Student Complaints On-Campus: [sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/](http://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/) On-Line Students Complaints: <https://distance.ufl.edu/student-complaint-process/>

**Flexibility Clause:** Circumstances may arise during the course that may prevent the instructor from fulfilling each and every component of this syllabus; therefore, syllabus should be viewed as a guide and is subject to change. Students will be notified of any changes.

## Tentative Course Outline:

Detailed course schedules are shown below. Please note that this represents current plans. As we go through the semester, these plans may need to change to enhance the class learning opportunity. Such changes, communicated clearly, are not unusual and should be expected.

The course is divided into 10 modules:

Module 1 – Course Introduction and Overview (wk 1)

Module 2 – Quality Control (wk 2)

Module 3 – Pre-requisites (wk 3)

Module 4 – Food Safety Regulations (wk 4)

Module 5 – HACCP (wk 5-6)

Module 6 – FSMA and Preventive Controls (wk 7-10)

Module 7– FSMA Produce Safety (wk 11)

Module 8 – Auditing and Inspection (wk 12)

Module 9 – Other systems (wk 13)

Module 10- Project work and presentation (wk 14-15)

Detailed course outline for each week is shown below:

Week (Dates)	Module /Topic	Students' required activities, exams, quizzes
Week 1 (Aug 25)	Course Introduction (Ahn/Goodrich)	Extra Credit: Introduce yourself (Due Sep 2)
Week 2 (Aug 30, Sep 1)	1. Overview of Food Safety Systems (Ahn) 2.1 Quality Control Systems (Guest lecture-Dr. Sims)	
Week 3 (Sep 6, 8)	2.2 Tools in Quality Control (Guest lecture - Dr. Sims) 3.1 Pre-requisites: GMPs (Ahn)	
Week 4 (Sep 13, 15)	3.2 Pre-requisites: SSOPs (Ahn) 4.1 FSMA and FDA's New Era of Smart Food Safety (Guest Lecture by Mr. Stewart Watson from FDA)	
Week 5 (Sep 20, 22)	4.2 Food Safety Regulation Overview (Ahn) <b>Exam 1</b>	Exam 1 (Sep 22)
Week 6 (Sep 27, 29)	5.1. Intro to HACCP (Goodrich) 5.2 HACCP Principles – Part I (Goodrich)	
Week 7 (Oct 4, 6)	5.2 HACCP Principles – Part II (Goodrich) 6.1 FSMA and Food Safety Plan overview (Ahn)	Group organization Posted
Week 8 (Oct 11, 13)	6.2 FSMA PC – Hazard analysis (Ahn) 6.3 FSMA PC – Process Control (Ahn)	
Week 9 (Oct 18, 20)	6.4. FSMA PC – Allergen & Sanitation Control (Ahn) 6.5. FSMA PC – Supply Chain Control & Verification (Ahn)	Final Project Assignment posted (Due Dec 9)
Week 10 (Oct 25, 27)	6.6. FSMA PC – Food Safety Plan Review & Project Introduction (Ahn/Goodrich) 6.7. FSMA PC - Recall Plan (Ahn)	
Week 11 (Nov 1, 3)	<b>Exam 2</b> 7.1 FSMA Produce Safety Rule – Part I (Guest Lecture by Dr. Schneider)	Exam 2 (Nov 1)
Week 12 (Nov 8,10)	7.2 FSM Produce Safety Rule – Part II (Guest Lecture by Dr. Schneider) 8. Auditing and Inspection (Goodrich)	
Week 13 (Nov 15,17)	Project Discussion/Check-up <b>Exam 3</b>	Exam 3 (Nov 17)
Week 14 (Nov 22)	9. GFSI and Other Food Safety Systems (Goodrich)	Extra credit quiz (Due: Dec 12)
Week 15/16 (Nov 29, Dec 1, 6)	10. Final Project Presentation	Project Presentation (Nov 29, Dec 1, 6) Project Report Due (Dec 9)