

University of Puerto Rico
 Mayagüez Campus
 College of Agricultural Sciences
 Program of Food Science and Technology

Course Syllabus

1. General Information:	
Alpha-numeric codification: HORT6007/CITA6007 Course Title: Safety of fruit and vegetable products Number of credits: 3 Contact Period: Two hours of lecture and three-hour laboratory per week	
2. Course Description:	
English: Advanced study of intrinsic and extrinsic factors that determine the growth of microorganisms, during post-harvest, processing, storage and transportation of fruits and vegetables that may affect public health.	
Spanish: Estudio avanzado sobre los factores intrínsecos y extrínsecos que determinan el crecimiento de microorganismos durante post-cosecha, procesamiento, almacenamiento y transporte de frutas y vegetales, que pueden afectar la salud pública.	
3. Pre/Co-requisites and other requirements:	
N/A	
4. Course Objectives:	
At the end of the course students should be able to: Evaluate intrinsic and extrinsic factors that determine the growth of microorganisms and affect public health Differentiate between food intoxication and food infection Recognize food pathogens in fruits and vegetables	
5. Instructional Strategies:	
<input checked="" type="checkbox"/> conference <input checked="" type="checkbox"/> discussion <input type="checkbox"/> computation <input checked="" type="checkbox"/> laboratory <input type="checkbox"/> seminar with formal presentation <input type="checkbox"/> seminar without formal presentation <input type="checkbox"/> workshop <input type="checkbox"/> art workshop <input type="checkbox"/> practice <input type="checkbox"/> trip <input type="checkbox"/> thesis <input type="checkbox"/> special problems <input type="checkbox"/> tutoring <input type="checkbox"/> research <input type="checkbox"/> other, please specify:	
6. Minimum or Required Resources Available:	
Classroom and food microbiology laboratory	
7. Course time frame and thematic outline	
Outline	Contact Hours
History of microorganisms in food	2
Taxonomy, role and significance of microorganisms in food	2
Primary sources of microorganisms found in foods	3
Intrinsic and extrinsic parameters of food that affect microbial growth	4
Food infections	2

Food intoxications	2
Safety of fresh and frozen fruits and vegetables	5
Safety of fresh-cut produce	5
Safety of processed fruits and vegetables	5
Total hours: (equivalent to contact period)	30
Lab outline	
Fundamentals of food microbiology	3
Sampling, detection and enumeration of pathogenic microorganisms	3
Microscopy visualization	3
Analysis of soil	3
Microbial attachment	3
Biofilms	3
Analysis of water	3
Analysis of fertilizers	3
Washing and sanitizing treatments for fruits and vegetables	3
Infiltration	3
Alycyclobacillus identification	3
Cyclospora identification	3
Patulin detection	3
Cryptosporidium identification	3
Methods of preservation for fruits and vegetables	3
Lab. total hours: (equivalent to contact period)	45

8. Grading System

Quantifiable (letters) Not Quantifiable A(100-90), B(89-80), C (79-70), D(69-60), F(59-0)

9. Evaluation Strategies

	Quantity	Percent
<input checked="" type="checkbox"/> Exams	2	50
<input checked="" type="checkbox"/> Final Exam	1	25
<input type="checkbox"/> Short Quizzes		
<input type="checkbox"/> Oral Reports		
<input type="checkbox"/> Monographies		
<input type="checkbox"/> Portfolio		
<input type="checkbox"/> Projects		
<input type="checkbox"/> Journals		
<input checked="" type="checkbox"/> Other, specify: Laboratory		25
TOTAL:		100%

10. Reasonable Accommodation (Law 51)

The University of Puerto Rico at Mayagüez (RUM) recognizes that each student has an inherited right to request reasonable accommodation according to Law 51: Law for Integral

Educational Services for People with Disabilities. Every student has the right to receive reasonable accommodation if he/she presents the necessary evidence to be evaluated by the Office of Services to Students with Disabilities (OSEI-RUM), and the related information can be found at the following link: <https://www.uprm.edu/cms/index.php/page/85>. If your case is approved by OSEI-RUM, you will receive reasonable accommodation in your courses and evaluation, and you must contact each professor for course registered. For additional information contact OSEI-RUM at Sánchez Hidalgo 410 or via telephone 787-832-4040 extension 3107.

11. Academic Integrity:

The University of Puerto Rico promotes the highest standards of academic and scientific integrity. Article 6.2 of the UPR Students General Bylaws (Board of Trustees Certification 13, 2009-2010) states that academic dishonesty includes, but is not limited to: fraudulent actions; obtaining grades or academic degrees by false or fraudulent simulations; copying the whole or part of the academic work of another person; plagiarizing totally or partially the work of another person; copying all or part of another person answers to the questions of an oral or written exam by taking or getting someone else to take the exam on his/her behalf; as well as enabling and facilitating another person to perform the aforementioned behavior. Any of these behaviors will be subject to disciplinary action in accordance with the disciplinary procedure laid down in the UPR Students General Bylaws.—.

12. Policy Against Discrimination Based on Sex, Sexual Orientation, and Gender Identity:

The University of Puerto Rico prohibits discrimination based on sex, sexual orientation, and gender identity in any of its forms, including that of sexual harassment. According to the Institutional Policy Against Sexual Harassment at the University of Puerto Rico, Certification Num. 130, 2014-2015 from the Board of Governors, any student subjected to acts constituting sexual harassment, may turn to the Office of the Student Ombudsperson, the Office of the Dean of Students, and/or the Coordinator of the Office of Compliance with Title IX for an orientation and/or formal complaint.

13. Sexual Harassment: Certification 130-2014-2015 states:

Sexual harassment in the workplace and in the study environment is an illegal and discriminatory act and is against the best interests of the University of Puerto Rico. All persons who understand they have been subject to acts of sexual harassment at the University of Puerto Rico may file a complaint and request that the institution investigate, where necessary, and assume the corresponding action by the university authorities. If the complainant is a student, he or she must refer his or her complaint to the Office of the Student Ombudsperson or that of the Dean of Students.

14. Certification 06-43 of the Academic Senate states, "The academic guidelines for offering online courses," defines:

Traditional face-to-face courses are those that have less than 25% of the course's regular contact hours via the Internet. Therefore, a three-credit course will be considered "face to face" if, of the 45 hours of regular contact, 11 or less are taught via the Internet. According to certification 16-43 of the Academic Senate, a course may include up to 25% of its total contact hours via the Internet. The objective of this is so that all professors have this alternative in the case of any unscheduled eventuality.

15. Grading System

Quantifiable (letters) Not Quantifiable

100-90 A; <90-80 B; <80-70 C; <70-60 D; <60 F

16. Bibliography:

Martin-Belloso, O., Soliva, R. *Advances in Fresh-Cut Fruits and Vegetables Processing*. 2010. CRC Press. Boca Ratón, FL.

Sapers, G.M., Gorny, J.R., Yousef, A.E. 2006. *Microbiology of Fruits and Vegetables*. CRC Press. Boca Ratón, FL.

James, J. 2006. *Microbial Hazard Identification in Fresh Fruits and Vegetables*. Wiley-Interscience

Jay, J.M., Loessner, M.J., Golden, D.A. 2005. *Modern Food Microbiology*. 7th edition. Springer

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