

COURSE MANAGERS

Dr. Francisco Artés-Hernández (Chair)
Dr. Perla Gómez Di Marco (Co-Chair)
Dr. Francisco Artés-Calero (Co-Chair)
Dr. Ginés B. Martínez-Hernández (Coordinator)
Universidad Politécnica de Cartagena (UPCT). SPAIN
<http://www.upct.es/gpostref/>



INSTRUCTORS FROM

Agriculture and Agri-Food Canada. [Canada](#)
Akdeniz University. [Turkey](#)
Al-Azhar University. [Egypt](#)
ARO, The Volcani Center. [Israel](#)
Chiang Mai University. [Thailand](#)
Cornell University. [USA](#)
Cranfield University. [United Kingdom](#)
Institute of Plant Biotechnology. IBV-UPCT. [Spain](#)
Instituto Valenciano de Investigaciones Agrarias. [Spain](#)
Katholieke Universiteit Leuven. [Belgium](#)
Kinki University. [Japan](#)
Michigan State University. [USA](#)
Plant Food Research. [New Zealand](#)
Shangdong Agricultural University. [China](#)
Stellenbosch University. [South Africa](#)
Texas A&M University. [USA](#)
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Universidad Politécnica de Cartagena. [Spain](#)
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Universidade Estadual de Campinas. [Brazil](#)
Università degli Studi di Foggia. [Italy](#)
Università degli Studi di Milano. [Italy](#)
Université Polytechnique de Toulouse. [France](#)
University of Florida. [USA](#)
University of Lisbon. [Portugal](#)
World Food Preservation Center® LLC. [USA](#)

PRACTICAL INFORMATION

The Course is addressed to Postharvest professionals and pre and post graduate students related to quality and safety assurance, research and extension on production, handling, transport and marketing of whole and fresh-cut fruits and vegetables.

- ✓ The course consists of **50** recorded **videos** (≈ 30 min each) organized in **5 Units**. Total Course duration is 25 h
- ✓ The videos are available at any time on the **e-platform** and can be **watched** at the student's **convenience**
- ✓ **Tutoring** of each class will be attended by the instructor
- ✓ A simple **evaluation test** consisting of 50-multichoice questions must be passed after each Unit
- ✓ **Supplementary material** for each class will be also available on the e-platform
- ✓ A **certificate** in Postharvest and Fresh-cut Technologies will be awarded by UPCT

COURSE ENROLLMENT AND FEES

Registration: www.upct.es/gpostref/
From 15 September **to** 13 November 2016
Course e-platform will be available **from** 14 November 2016 **to** 31 January 2017.
Registration fees: Professionals: 1,200 €; Students: 600 €;
UPCT students: 300 €
For more information: gpostref@upct.es

41 INSTRUCTORS FROM:

5 Continents
20 Countries
30 Universities/Research Centers



Universidad Politécnica
de Cartagena (UPCT)



November 2016 to January 2017

UNIT 1. INTRODUCTION AND FUNDAMENTALS (2.5 h)

- 1. Introduction. Postharvest losses. The Food Preservation Revolution.** Charles Wilson (World Food Preservation Center® LLC, USA)
- 2. Environmental factors affecting postharvest quality and safety.** Francisco Artés-Hernández (UPCT, Spain)
- 3. Composition of fruit and vegetables. Nutritional quality.** Luis Cisneros-Zevallos (Texas A&M University, USA)
- 4. Physiology and biochemistry of fruit and vegetables.** Inmaculada Recasens (Universidad de Lleida, Spain)
- 5. Preharvest factors affecting postharvest quality and safety.** Perla Gómez (Institute of Plant Biotechnology (IBV-UPCT), Spain)

UNIT 1 multichoice questions Test

UNIT 2. HORTICULTURAL QUALITY AND MATURATION (5 h)

- 6. Ethylene and maturation.** Daniel Valero (Universidad Miguel Hernández, Spain)
- 7. Maturity Indices and quality attributes determination.** Giancarlo Colelli (Università degli Studi di Foggia, Italy)
- 8. Nondestructive quality measurement.** María Luisa Amodio (Università degli Studi di Foggia, Italy)
- 9. Strategies to inhibit synthesis and action of ethylene during postharvest.** Chris Watkins (Cornell University, USA)
- 10. Strategies to remove ethylene during postharvest.** Francisco Artés-Hernández (Universidad Politécnica de Cartagena, Spain)
- 11. Postharvest pathology.** Lluís Palou (Instituto Valenciano de investigaciones Agrarias, Spain)
- 12. Postharvest physiological disorders.** Juan Pablo Fernández Trujillo (Universidad Politécnica de Cartagena, Spain)
- 13. Postharvest biotechnology.** Jean Claude Pech (University of Toulouse, France)
- 14. Biological control of postharvest diseases.** Samir Droby (ARO, The Volcani Center, Israel)
- 15. Modelling postharvest quality.** Bart Nicolai (Katholieke Universiteit Leuven, Belgium)

UNIT 2 multichoice questions Test

UNIT 3. COLD STORAGE ENGINEERING & TECHNOLOGY (5 h)

- 16. Cooling techniques.** Antonio López-Gómez (Universidad Politécnica de Cartagena, Spain)
- 17. Pre-cooling systems.** María Teresa Sánchez-Pineda (Universidad de Córdoba, Spain)
- 18. Postharvest ethylene application techniques.** Francisco Artés (Universidad Politécnica de Cartagena, Spain)
- 19. Controlled atmosphere storage.** Mustafa Erkan (Akdeniz University, Turkey)
- 20. Modified atmosphere packaging.** Randy Beaudry (Michigan State University, USA)
- 21. Dynamic controlled atmosphere storage.** Pieter Verboven (Katholieke Universiteit Leuven, Belgium)
- 22. Postharvest packaging design.** Bárbara Teruel (Universidad de Campinas, Brazil)
- 23. Refrigerated air and truck transportation of horticultural produce.** Víctor Escalona (Universidad de Chile, Chile)
- 24. Refrigerated maritime transportation of horticultural produce.** To be confirmed
- 25. Sensors for postharvest quality assessment.** Belén Diezma (Universidad Politécnica de Madrid, Spain)

UNIT 3 multichoice questions Test

UNIT 4. POSTHARVEST HANDLING SYSTEMS (7 h)

- 26. Postharvest handling systems: Citrus fruit.** Mark Ritenour (University of Florida, USA)
- 27. Postharvest handling systems: Table grapes.** Luis Luchsinger (Universidad de Chile, Chile)
- 28. Postharvest handling systems: Berries.** Víctor Escalona (Universidad de Chile, Chile)
- 29. Postharvest handling systems: Pome fruits.** Domingos Almeida (University of Lisbon, Portugal)
- 30. Postharvest handling systems: Stone fruits.** Peter Toivonen (Agriculture and Agri-Food Canada, Canada)
- 31. Postharvest handling systems: Pomegranates.** Linus Opara (Stellenbosch University, South Africa)
- 32. Postharvest handling systems. Fruit vegetables: tomato, pepper, eggplant.** Mostafa Zaki Sultan (Al-Azhar University, Egypt)
- 33. Postharvest handling systems. Fruit vegetables: melon, watermelon, cucumber.** Víctor Rodov (ARO The Volcani Center, Israel)
- 34. Postharvest handling systems: Leafy and stem vegetables.** Perla Gómez (Institute of Plant Biotechnology IBV-UPCT, Spain)

35. Postharvest handling systems: Bulb and inflorescence vegetables. M^a Carmen Alamar (Cranfield University, UK)

36. Postharvest handling systems: Pineapple and exotic fruits. Quingguo Wang (Shandong Agricultural University, China)

37. Postharvest handling systems: Banana. Edmundo Mercado (Universidad de Querétaro, Mexico)

38. Postharvest handling systems: Mango and papaya. Sarana Somano (Chiang Mai University, Thailand)

39. Postharvest handling systems: Kiwifruit and avocado. Allan Woolf (Plant Food Research, New Zealand)

UNIT 4 multichoice questions Test

UNIT 5. FRESH-CUT FRUIT AND VEGETABLES (5.5 h)

40. Fresh-cut fruit and vegetables. Definition, physiology and biochemistry. Jeffrey K. Brecht (University of Florida, USA)

41. Fresh-cut. Unit operations & equipment: vegetables. Francisco Artés (Universidad Politécnica de Cartagena, Spain)

42. Fresh-cut. Unit operations & equipment: fruits. Giancarlo Colelli (Università degli Studi di Foggia, Italy)

43. Fresh-cut. Safety issues. Hidemi Izumi (Kinki University, Japan)

44. Fresh-cut. Genomics - volatiles emission. Antonio Ferrante (Università degli Studi di Milano, Italy)

45. Fresh-cut. Water sanitation: Chlorine and alternatives. Francisco Artés-Hernández (UPCT, Spain)

46. Fresh-cut. Alternative treatments: UV-C & gases. Perla Gómez (IBV-UPCT, Spain)

47. Fresh-cut plant processing design. Francisco Artés-Hernández (UPCT, Spain)

48. Byproduct revalorization in the postharvest & fresh-cut industry. Encarna Aguayo (UPCT, Spain)

49. Minimal processing of plant derived products: smoothies, purees, etc. Ginés B. Martínez-Hernández (UPCT, Spain)

50. Future research needs in Postharvest and Fresh-cut Technologies. In Memoriam of Adel Kader. Francisco Artés-Hernández, Giancarlo Colelli & Luis Cisneros-Zevallos

UNIT 5 multichoice questions Test

