



ALMA MATER STUDIORUM  
UNIVERSITÀ DI BOLOGNA



UNIVERSITÀ  
DI PARMA



UNIMORE  
UNIVERSITÀ DEGLI STUDI DI  
MODENA E REGGIO EMILIA



UNIVERSITÀ  
CATTOLICA  
del Sacro Cuore



UNIVERSITÀ  
DEGLI STUDI  
DI FERRARA  
- EX LABORE FRUCTUS -

# International Interuniversity Master's Degree in Food Safety and Food Risk Management

## Curriculum: Risk Management (Bologna-Ferrara)

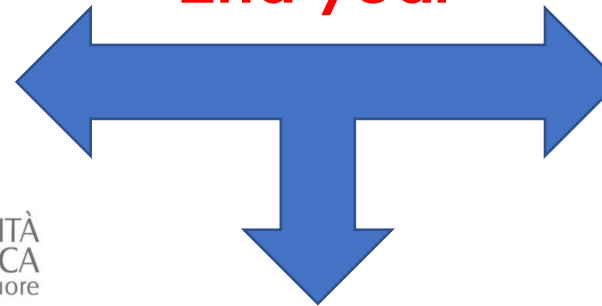
# FOOD SAFETY AND FOOD RISK MANAGEMENT

## 1° YEAR (common in Parma)



UNIVERSITÀ  
DI PARMA

2nd year



Risk Mitigation

(Piacenza-Parma)



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UNIVERSITÀ  
CATTOLICA  
del Sacro Cuore

Agri-Food Safety

(Modena-Reggio)



UNIMORE

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Risk Management

(Bologna-Ferrara)



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# The University of Bologna



9 centuries of history from as far back as 1088

In the subject **Agriculture & Forestry**,  
UNIBO is classified 1<sup>st</sup> in Italy and 40<sup>th</sup> in the world



# The Department of Agricultural and Food Sciences



**Easy to reach** (20 min. by bus from the railway station and the city centre, 3 min. by car from tangenziale exit n. 9)

**Free parking**

**Free wifi connection**

**Bar**

**B-free and relax area**

# The Curriculum

## Mandatory courses (24 ECTS)

Advanced and predictive food microbiology

6 ECTS

Advanced food processing and packaging

6 ECTS

Farm biosecurity and foodborne risk (integrated course)

6 ECTS

Risk assessment of food products to human health  
(integrated course)

6 ECTS

Students' free choices

6 ECTS

Practical training

17 ECTS

Final dissertation

4 ECTS

# The Curriculum

## Student' free choices (24 ECTS)

**One Health in food safety (integrated course)**

**Risk analysis in the food chain and animal welfare (integrated course)**

**Food Economics and policy**

**Geochemical and isotopic fingerprint as tools for food traceability and food safety**

<https://cdlm-fsafrm.unipr.it/studying/subjects>

<https://en.unipr.it/ugov/degree/5547>

# The Curriculum

## Laboratory activities

Laboratory activities in “real” laboratories where researchers are performing their activities every day and where you will be able to use expensive and high throughput instruments

## Additional seminars

- New Food Safety Metrics (ALOP, FSO, PO, PC)
- Decision support tools to manage the food risk at the industry level
- Emerging non-thermal and packaging technologies applied in food industries

## Additional technical visit

Visit at food industries and discussion on risk management

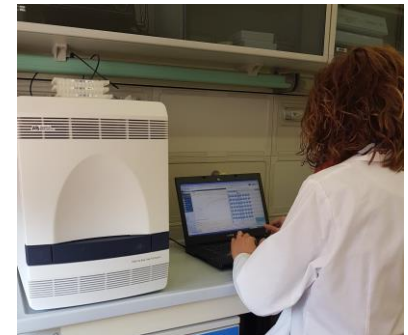
## Exams

Oral and written examination

# The Curriculum

## Practical Training (17 ECTS)

- ✓ Amadori Group
  - ✓ Martini Group
  - ✓ Orogel, Macè
  - ✓ EmmeFood
  - ✓ Granarolo Group
  - ✓ Centrale del latte
  - ✓ University laboratories (food safety and food technology) at UNIBO
  - ✓ Italian public veterinary institutes (IZSLER - Bologna)
  - ✓ Erasmus programme
- Meat of animal origin
- Food of plant origin
- Ready to eat food products
- Milk and dairy products





# The Curriculum

## Practical Training (17 ECTS) – Erasmus Programme

### Active collaborations with European Research Institutions

Institution	Topic
Danmarks Tekniske Universitet	Genomics and metagenomics applied to food and the environment
Universidad de Cordoba	Predictive Microbiology
National Veterinary Institute	Growth and survival of <i>Listeria monocytogenes</i>
Institut Pasteur	Genomics and bioinformatic pipelines
TEAGASC	Beef cattles and related food safety issues
Lund University	Emerging processing technologies for food treatments
Institute for Plasma Science and Technology	Study of plasma treatments on food products
Frie Universitet Berlin	Antimicrobial resistance

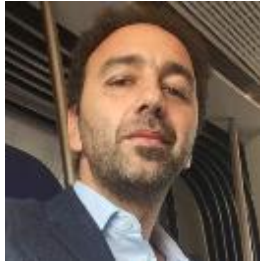
# The People



**Prof. Gerardo Manfreda**



**Prof. Giulia Tabanelli**



**Prof. Pietro Rocculi**



**Prof. Caterina Lupini**



**Prof. Marco Candela**



**Prof. Elena Marrocchino**



**Prof. Meri Raggi**



# The People



**Prof. Andrea Barbarossa**



**Prof. Mario Mazzocchi**



**Prof. Monica Caffara**



**Prof. Fabio Vivarelli**



**Prof. Barbara Padalino**



**Prof. Frédérique Pasquali**



# Learning outcomes

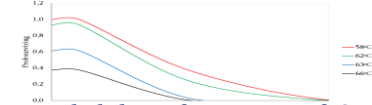
The program will enable students to manage food risks through different approaches:

## ✓ Predict the risk

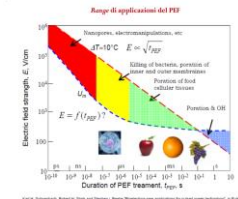
### CASE STUDIES

Practical applications of predictive microbiology for early warning to apply by regulatory agency and food industry

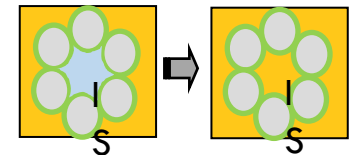
Growth of *L. monocytogenes* in smoked salmon



Probability of surviving of *S. enteritidis* vs treatment time (min)



**Pulsed Electric Fields (PEF)**



**Vacuum Impregnation with Competitor bacteria**

## ✓ Manage the growth and survival of biological hazards applying innovative technologies in food industry

### Theoretical and practical knowledge

Emerging food processing and packaging technologies able to positively impact on food risk management

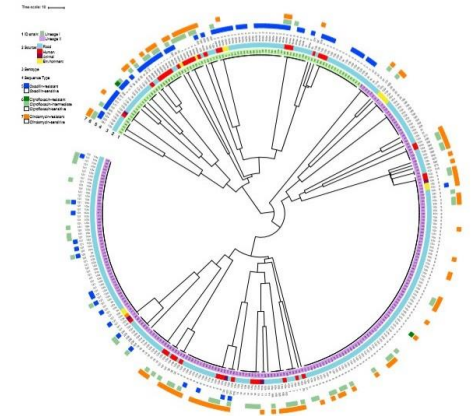
# Learning outcomes

The program will enable students to manage food risks through different approaches:

- ✓ **Trace the hazard** (both at farm and food processing plant)

## Case studies and visit on farm

Manage the microbial food risk by tracing the hazard from farm to fork  
Manage the risk factors by biosecurity measures applied in farms

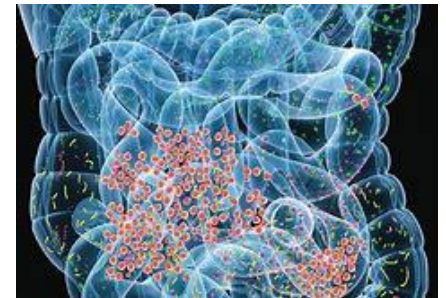


Genomic tracing of Listeria monocytogenes

- ✓ **Manage the risk by selection of healthy microbiomes**

## Case studies

Risk management of food by selection of healthy microbiomes using metagenomic analysis  
Risk management and safety standards for food ingredients and contaminants: case studies of xenobiotics in food



# 5 REASONS TO ENROLL

- 1) Acquire **skills in risk assessment** and **risk reduction strategies**
- 2) Acquire knowledges strongly wanted by **EFSA** and **food companies**
- 3) **Interact with passionate teachers** willing to share with you their recent discoveries in past and on-going European research projects
- 4) **Exploit existing research networks** of people to perform your **practical training abroad**
- 5) **Access to high throughput and new generation instruments** in laboratories in which researchers perform experiments every day



# Curriculum Risk Management



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