UNIVERSITÀ DI PISA

APPLIED HYGIENE

ANNALAURA CARDUCCI

Anno accademico	2020/21
CdS	BIOLOGY APPLIED TO BIOMEDICAL SCIENCES
Codice	045FF
CFU	6

Moduli	Settore/i	Tipo	Ore	Docente/i
IGIENE APPLICATA	MED/42	LEZIONI	48	ANNALAURA CARDUCCI

Learning outcomes

Knowledge
The student will acquire the fundamental skills of quality management and risk.

Assessment criteria of knowledge
The student will be assessed with a final oral exam.

Skills
The student will acquire the practical knowledge of general hygiene principles of quality management and risk to human health related to the life and work settings and to foods.

Assessment criteria of skills
During the oral exam students will be encouraged to solve problems related to risk analysis and risk management.

Behaviors
Students will acquire skills in the management of chemical and biological risk in several contexts.

Assessment criteria of behaviors
During the oral exam, the student will be assessed in the use of risk analysis methods.

Prerequisites
Hygiene

Teaching methods
Lectures and seminars with slides. Site elearning used to upload slides. Communication with students through email.

Syllabus
Part I: PRINCIPLES AND METHODS
Primary prevention, Health determinants, Agenda 20-30, basic concepts and definition of risk analysis
RISK ASSESSMENT:
General principles and phases

1. **Hazard Identification and characterization**

CHEMICAL HAZARDS:
Classification, origin, diffusion, health effects: POPs (pesticides, PCB, etc.), PTS (heavy metals, PAH), endocrine disruptors, microplastics, medicines and antibiotics, disinfectants, biological toxins (algal biotoxins, cyanotoxins, mycotoxins)
Dose-response relations for toxic and cancerogenic chemicals

PHYSICAL HAZARDS:
Classification, origin, diffusion, health effects: Ionizingradiation, electromagnetic waves, noise
BIOLOGICAL HAZARDS:
Classification aimed at the risk assessment
Characteristics and epidemiology: enteric pathogens (hepatitis A and E virus, norovirus, salmonellae), respiratory pathogens (legionellae), opportunistic pathogens, antibiotic-resistant bacteria, emerging pathogens (SARS Cov-2)
Dose-response relations for infectious agents

1. **Exposure assessment**

General principles
Chemicals: environmental monitoring, biomarkers
Physical agents: environmental monitoring, biomarkers
Biologici agenti: environmental monitoring according the transmission chain
The exposome

1. **Risk Characterization (estimate).**

Direct and indirect methods
Qualitative estimate, risk matrices
Chemicals, models
Physical agents, models
Biological agents, QMRA
RISK CONTROLS:
General principles, acceptable risk, Deming wheel
Risk Control methodology
HACCP: phases and methods
RISK COMMUNICATION:
Risk perception: Outrage and its determinants
Health literacy
Communication plans, Social Marketing

Part II: APPLICATIONS AND NORMS
ENVIRONMENTAL RISK ANALYSIS
Legislation evolution
Risk and Impact assessment
Environmental and Health Impact Assessment and application models
Water: Water safety plan, drinking water and eater plants, bathing waters, water reuse, aquaculture
OCCUPATIONAL RISK ANALYSIS
DLgs 81/2008 and legislation evolution
Safety organization: Organizzazione della sicurezza: roles and functions
Risk Assessment Document
Occupational Risk Control: collective and individual measures
Occupational risks categories
Chemical Risk: REACH and CLP regulations
Physical Risk: radiazioni e rumore
Biological Risk: peculiarities and evolution
Biological risk in wastewater treatment plants and in solid waste management
Occupational risks in laboratory:
Assessment and control
Risks from GMMO
Risks from SARS-Cov 2
Occupational risk assessment from a gender perspective
FOODS RISK ANALYSIS
Legislation evolution
Food related risks: assessment and control
Food preservation
Food production chain and HACCP
RISK ANALYSIS AND QUALITY:
Definitions and norms (ISO, CEN, UNI)
Accreditation and Certification
Quality in laboratories

Bibliography
Recommended textbook: "Professione igienista" Giorgio Gilli, 2010. Casa Editrice Ambrosiana

Non-attending students info
There are no changes to non-attending students about the program, examination procedures and

UNIVERSITÀ DI PISA

bibliography

Assessment methods

The oral test consists of an interview between the candidate, the teacher and other collaborators of the lecturer. The oral test is not accepted if the candidate repeatedly show the inability to properly learn the basics of the course and put parts of the program report and these notions to respond correctly.

Work placement

The course face many topics include in the State examination for the Biologist Profession.

Updated: 02/10/2020 09:53