



UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Scienze della Terra e del Mare		
ACADEMIC YEAR	2024/2025		
BACHELOR'S DEGREE (BSC)	BIODIVERSITY AND TECHNOLOGICAL INNOVATION		
INTEGRATED COURSE	HEALTH ISSUES MANAGEMENT - INTEGRATED COURSE		
CODE	23038		
MODULES	Yes		
NUMBER OF MODULES	2		
SCIENTIFIC SECTOR(S)	MED/44, AGR/11		
HEAD PROFESSOR(S)	FIRENZE ALBERTO	Professore Associato	Univ. di PALERMO
OTHER PROFESSOR(S)	MANACHINI BARBARA	Professore Associato	Univ. di PALERMO
	ROSY INES		
	FIRENZE ALBERTO	Professore Associato	Univ. di PALERMO
CREDITS	9		
PROPAEDEUTICAL SUBJECTS			
MUTUALIZATION			
YEAR	3		
TERM (SEMESTER)	1° semester		
ATTENDANCE	Not mandatory		
EVALUATION	Out of 30		
TEACHER OFFICE HOURS	<p>FIRENZE ALBERTO Friday 14:00 15:00 Dipartimento di Scienze per la promozione della Salute e Materno Infantile "G. D'Alessandro".</p> <p>MANACHINI BARBARA ROSY INES Tuesday 10:00 11:30 Viale delle Scienze, 13. Edificio 5A, stanza 004 Thursday 10:00 11:30 Ricevimento studenti polo Trapani c/o la sede del polo di Trapani, Via del principe di Napoli e on line su richiesta.</p>		

<p>PREREQUISITES</p>	<p>The student must possess the skills and knowledge necessary to pass the exam.</p>
<p>LEARNING OUTCOMES</p>	<p>1. Knowledge The course aims to provide students with theoretical and methodological tools aimed at developing knowledge in the field of environmental and health risk assessment, occupational risk assessment and occupational safety.</p> <p>Specifically, students are expected to acquire basic knowledge of the integrated assessment of the worker's risk profile and the most appropriate preventive strategies against the main modifiable risk factors. And again, waste management (legislation, classification, authorization system, sanction system); the protection of waters (legislation, bodies in charge of controls, sanction system); soil pollution and remediation of polluted sites (legislation, administrative procedures, environmental restoration, penalty system); air pollution (national legislation, regulation of air pollution of industrial origin, administrative and penal sanctions after corrective measures); VIA, VAS, IPPC and AUA</p> <p>2. Knowledge and understanding Ability to understand the principles and methodologies of risk assessment for the general and working population related to exposure to toxic and carcinogenic agents, the prevention of habitat modifications induced by human activities or settlements , risk factors for health in the workplace (physical, chemical, biological, biomechanical and relational agents). At the same time the student will have to know the basic principles of epidemiology and the basic principles of primary, secondary and tertiary prevention, methodologies and intervention models for health promotion.</p> <p>3. Ability to apply knowledge and understanding The student will have to acquire the ability to autonomously carry out assessments in the field of Safety and the Environment, the management of safety and environmental protection systems, will have to know how to collect and process data relating to environmental monitoring , waste, emissions, energy resources, etc.). Must know the legal requirements on health and safety in the workplace, Legislative Decree 81/08, deal with risk assessment and improvement plans, update safety procedures, must know how to verify the availability and correct use of personal protective equipment (PPE). They will also have to acquire the ability to autonomously carry out an assessment of the risks for the general and working population linked to exposure to toxic and carcinogenic agents, identifying the correct countermeasures to reduce them.</p> <p>4. Making judgments On the basis of knowledge, understanding and application of what has been learned, the student must be able to develop making judgments: - Demonstrating the ability to answer for one's own work during professional practice in accordance with the professional profile; - Using critical thinking skills to deliver effective technical-preventive services; - Demonstrating the ability to also take into consideration other operators in the exercise of their actions; - Applying ethical principles in one's professional behaviour.</p> <p>5. "Compensatory tools and dispensatory measures will be guaranteed by the Disability and Neurodiversity Center - University of Palermo (Ce.N.Dis.) to students with disabilities and neurodiversity, based on specific needs and in implementation of current legislation."</p>
<p>ASSESSMENT METHODS</p>	<p>The assessment of learning will take place through a written or an oral test which aims to assess whether the student possesses knowledge and understanding of the program topics, independent judgment, ability to apply the acquired knowledge, specific disciplinary language.</p> <p>The candidate will have to answer at least two / three oral questions, which concern all the parts of the program, with reference to the recommended texts. The final evaluation is expressed out of thirty. The sufficiency threshold will be reached when the student shows knowledge e understanding of the topics at least in general lines; he must equally possess expository and argumentative skills such as to allow the transmission of his knowledge to the examiner. Below this threshold, the exam will be insufficient. On the other hand, the more the candidate will be able to autonomously find connections between the topics of the course and be able to go into detail about the discipline being tested, the more the evaluation will be positive.</p> <p>The mark out of thirty is assigned according to the following grid: A-A + = 30-30 cum laude = Excellent = Excellent knowledge of the teaching content; the student demonstrates high analytical-synthetic ability and is able to apply knowledge to solve problems of high complexity B = 27-29 = Excellent = Excellent knowledge of teaching content and excellent language properties; the student demonstrates analytical-synthetic ability and is able to apply the knowledge to solve problems of medium complexity and, in some cases, even high complexity C = 24-26 = Good = Good knowledge of teaching content and good language</p>

	<p>skills; the student is able to apply knowledge to solve problems of medium complexity</p> <p>D = 21-23 = Fair = Fair knowledge of the teaching contents, in some cases limited to the main topics; acceptable ability to use the specific language of the discipline and to independently apply the acquired knowledge</p> <p>E = 18-20 = Sufficient = Minimum knowledge of teaching contents, often limited to the main topics; modest ability to use the specific language of the discipline and to independently apply the acquired knowledge</p> <p>F = 1-17 = Insufficient = Does not possess an acceptable knowledge of the main teaching contents; very little or no ability to use the specific language of the discipline and to independently apply the acquired knowledge</p>
TEACHING METHODS	The teaching is carried out through lectures and exercises, also with the aid of computers and slides downloadable from the Unipa portal.

MODULE SAFETY AND ENVIRONMENT

Prof. ALBERTO FIRENZE

SUGGESTED BIBLIOGRAPHY

- Lorenzo Alessio, Pietro Apostoli "Manuale di medicina del lavoro e igiene industriale" - Piccin-Nuova Libreria
- A. Firenze et al: Conoscere per gestire il rischio in sanità 2021, SEU editore
- C. Signorelli et al: Igiene e Sanità Pubblica 2019, SEU Editore
- W. Ricciardi et al: Igiene Medicina Preventiva e Sanità Pubblica 2021, Idelson Gnocchi Editore

AMBIT	10703-Attività formative affini o integrative
INDIVIDUAL STUDY (Hrs)	102
COURSE ACTIVITY (Hrs)	48

EDUCATIONAL OBJECTIVES OF THE MODULE

1. Knowledge The course aims to provide students with theoretical and methodological tools aimed at developing knowledge in the field of environmental and health risk assessment, occupational risk assessment and occupational safety.

Specifically, students are expected to acquire basic knowledge of the integrated assessment of the worker's risk profile and the most appropriate preventive strategies against the main modifiable risk factors. And again, waste management (legislation, classification, authorization system, sanction system); the protection of waters (legislation, bodies in charge of controls, sanction system); soil pollution and remediation of polluted sites (legislation, administrative procedures, environmental restoration, penalty system); air pollution (national legislation, regulation of air pollution of industrial origin, administrative and penal sanctions after corrective measures); VIA, VAS, IPPC and AUA

2. Knowledge and understanding Ability to understand the principles and methodologies of risk assessment for the general and working population related to exposure to toxic and carcinogenic agents, the prevention of habitat modifications induced by human activities or settlements, risk factors for health in the workplace (physical, chemical, biological, biomechanical and relational agents). At the same time the student will have to know the basic principles of epidemiology and the basic principles of primary, secondary and tertiary prevention, methodologies and intervention models for health promotion.

3. Ability to apply knowledge and understanding The student will have to acquire the ability to autonomously carry out assessments in the field of Safety and the Environment, the management of safety and environmental protection systems, will have to know how to collect and process data relating to environmental monitoring, waste, emissions, energy resources, etc.). Must know the legal requirements on health and safety in the workplace, Legislative Decree 81/08, deal with risk assessment and improvement plans, update safety procedures, must know how to verify the availability and correct use of personal protective equipment (PPE). They will also have to acquire the ability to autonomously carry out an assessment of the risks for the general and working population linked to exposure to toxic and carcinogenic agents, identifying the correct countermeasures to reduce them.

4. Making judgments On the basis of knowledge, understanding and application of what has been learned, the student must be able to develop making judgments: - Demonstrating the ability to answer for one's own work during professional practice in accordance with the professional profile; - Using critical thinking skills to deliver effective technical-preventive services; - Demonstrating the ability to also take into consideration other operators in the exercise of their actions; - Applying ethical principles in one's professional behaviour.

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SYLLABUS

Hrs	Frontal teaching
4	Evaluation of occupational risks, accident at work and occupational disease
4	Physical risks (ionizing and non-ionizing radiation, noise, mechanical vibrations, electricity, ROA)
4	Risks of a chemical nature (chemical agents, carcinogens, mutagens)
4	Risks of a biological nature (occupational infections)
4	Risks of an organizational nature (manual handling of loads, video terminals, incongruous postures)
4	Indices of stress and thermal well-being, Assessment of work-related stress
6	Waste classification and management: the dispersion landfill and the waste-to-energy plant
6	Water classification and protection. Wastewater treatment plants.
4	Soil pollution and remediation of polluted sites
4	Air pollution
4	VIA - VAS - IPPC - AUA

MODULE NEW GREEN DEAL

Prof.ssa BARBARA ROSY INES MANACHINI

SUGGESTED BIBLIOGRAPHY

Di seguito sono riportati alcuni testi base che vengono considerati sostanzialmente equivalenti come supporto per la preparazione, tuttavia poiché alcuni argomenti trattati sono recenti il docente fornirà articoli scientifici e materiale didattico (ad esempio presentazioni PowerPoint), che verranno caricati sulla piattaforma Unipa, ad integrazione e come complemento del contenuto dei testi ed eventuale supporto alla preparazione. Verranno altresì forniti dei materiali per l'approfondimento di alcune tematiche (specifiche) ma che sono considerati facoltativi.

Books and alternative books are suggested in addition scientific papers and materials (PowerPoint presentations) provided by the teacher will be loaded on the platform Unipa. Other materials will be up-loaded for specific subjects but they are supporting materials not mandatory for the exam.

1. Arjun Kumar A. Rathi Handbook of Environmental Impact Assessment: Concepts and Practice. 2021 ISBN13: 978-1-5275-6664-4. Cambridge Scholars Publishing
2. AAVV. Environmental Risk Assessment. ISBN: 9783540262497 Jan 2006. Springer
3. AAVV, EFSA Panel Plant Protection Prod. (2017) -Scientific Opinion addressing the state of the science on risk assessment of plant protection products for in-soil organisms. EFSA Journal 15,2; eISSN,1831-4732,4690. DOI: 10.2903/j.efsa.2017.4690
4. AAVV (2017) Guidance on allergenicity assessment of genetically modified plants. EFSA Journal 15,6; eISSN, 1831-4732,4862, DOI: 10.2903/j.efsa.2017.4862
5. Arpaia, S; Bartsch, D; Delos, M; Gathmann, A; Hails, R; Krogh, PH; Kiss, J; Manachini, B; Perry, J; Sweet, J; Zwahlen, C; Mestdagh, S, European Food Safety Authority, 2010, Outcome of the public consultation on the draft Scientific Opinion of the Scientific Panel on Genetically Modified Organisms (GMO) on the assessment of potential impacts of genetically modified plants on non-target organisms. EFSA Journal 8,11; eISSN,1831-4732,1878, DOI: 10.2903/j.efsa.2010.1878
6. Manachini, B., Bazan, G., & Schicchi, R. (2018). Potential impact of genetically modified Lepidoptera-resistant Brassica napus in biodiversity hotspots: Sicily as a theoretical model. Insect science, 25(4), 562-580.
7. Perry, J. N., Devos, Y., Arpaia, S., Bartsch, D., Gathmann, A., Hails, R. S., ... & Sweet, J. B. (2010). A mathematical model of exposure of non-target Lepidoptera to Bt-maize pollen expressing Cry1Ab within Europe. Proceedings of the Royal Society B: Biological Sciences, 277(1686), 1417-1425.

AMBIT	10703-Attività formative affini o integrative
INDIVIDUAL STUDY (Hrs)	51
COURSE ACTIVITY (Hrs)	24

EDUCATIONAL OBJECTIVES OF THE MODULE

In this training program, we will focus on the environmental risk assessment (ERA) of different human impacts according to the relevant Guidance Documents (such as EFSA, FAO, and WHO) following the 6 steps (1. Problem formulation including hazard identification, 2. Hazard characterization, 3. Exposure characterization, 4. Risk characterization, 5. Risk management strategies, 6. Overall risk evaluation and conclusions) and the specific areas of concern highlighting selected concerns (e.g. Persistence and invasiveness). We will consider some case studies such as the impact of genetically modified organisms, alien invasive species, and pesticides including some examples like plant-to-plant gene flow, Plant to micro-organisms gene transfer, Interactions with target organisms, Interactions with non-target organisms, Impacts of the specific cultivation, management and harvesting techniques especially on biodiversity.

The training approach will follow the "participatory principles", and be inclusive as much as possible. In the beginning, the first lessons will introduce and discuss ERA, followed by group activities in breakout sessions taking selected cases for ERA. The results of the discussions will be reported back at all together to the plenary.

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SYLLABUS

Hrs	Frontal teaching
2	INTRODUCTION TO ENVIRONMENTAL RISK ASSESSMENT (ERA)
10	1. Problem formulation including hazard identification 2. Hazard characterisation 3. Exposure characterisation 4. Risk characterisation 5. Risk management strategies
2	Examples of ERA for pesticide assessment
6	Examples of ERA with genetically modified organisms with particular reference to genetically modified plants against phytophagous insects. Large and small -scale consequences
2	More Practical examples and discussions.
2	Risk Assessment, Risk Management & Risk Communication