

COURSE OVERVIEW

Prof. Anna Maria Eleuteri
Coordinator



The course is an example of interdisciplinarity applied to research with the aim of integrating fundamental biological and clinical issues with biotechnological applications.

Research projects are “problem-oriented”, focussed on addressing societal challenges in the field of Life and Health, in compliance with Horizon Europe guidelines.



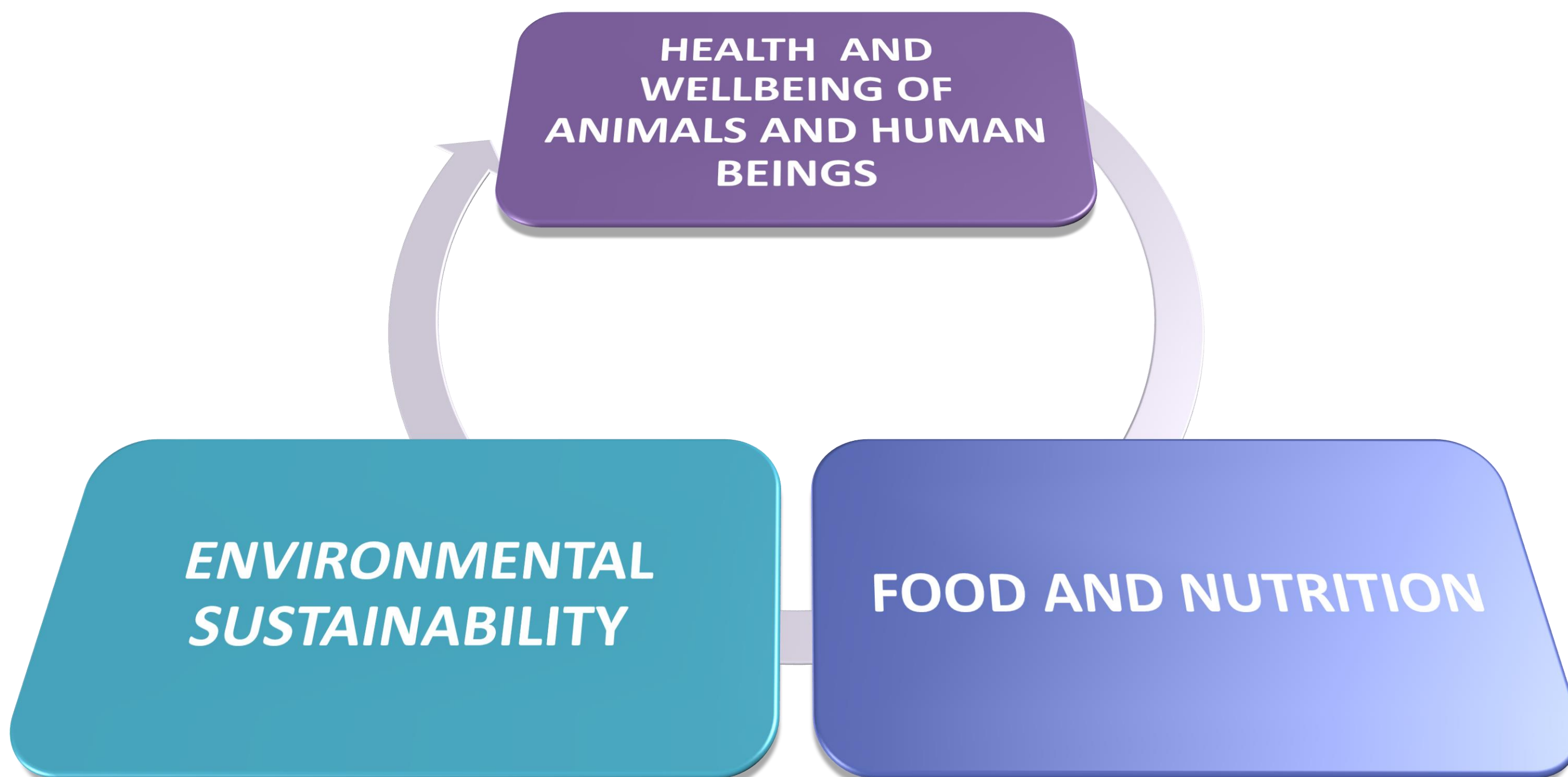
Among those challenges, we work for:

- ✓ the development of a sustainable bioeconomy, exploiting specific properties of prokaryotic and eukaryotic microorganisms;
- ✓ the microbial adaptation to climate changes;
- ✓ the application of emerging biotechnologies for the health of the environment and living organisms;
- ✓ the use of innovative technologies for producing functional food;
- ✓ food safety and eco-sustainable agronomic development;
- ✓ Integrated knowledge for a proper environmental management.

CURRICULA INCLUDED IN THE DOCTORAL COURSE

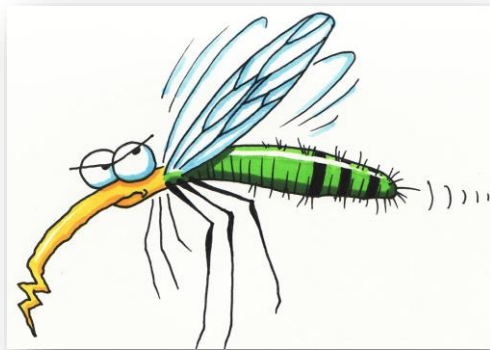
- **MOLECULAR BIOLOGY AND CELLULAR BIOTECHNOLOGY**
- **NUTRITION, FOOD AND HEALTH**
- **ONE HEALTH** (integrated approach to health focused on interactions between animals, humans and the environment with attention to inland valorization)

RESEARCH AREAS



Examples of Research Projects with a PhD position

Studying microbial symbiosis in mosquitoes and possible applications for the control of vector-borne diseases



Aim of the Project

Combining metagenomics and selection studies with innovative structural and biochemical approaches to dissect mechanisms and metabolic pathways, we aim to answer the following questions: which bacteria contribute to mosquito insecticide susceptibility/resistance? How do they perform this function? Finally, how does insecticide resistance in turn affect symbionts, the interactions between them, and thus host biology?



Examples of Research Projects with a PhD position



Evaluating the effects of chronic sleep restriction on adolescent brain maturation.

Project aims

- To quantify behavioural abnormalities following adolescent chronic sleep restriction
- To assess sleep deprivation - related changes in brain connectivity
- To identify molecular markers of neuronal fatigue as response to sleep loss

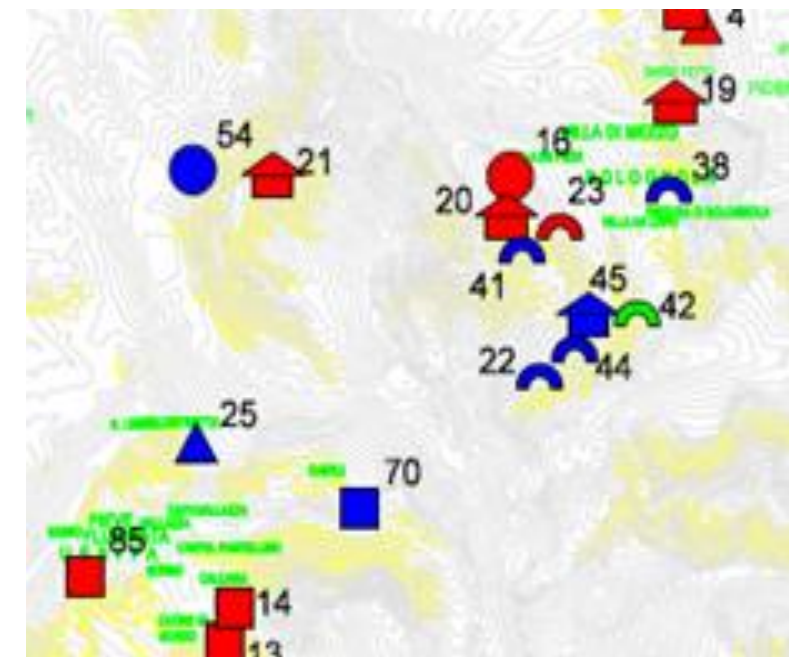
Funded by



the
giovanni **ARMENISE**
HARVARD foundation

Examples of Research Projects with a PhD position

Plant diversity and forest structure



Adopt a field experimental system across management gradient and oldgrowth.

In-site sampling and measurements for plant assemblies and functional traits profiles.

Relations with stand descriptors (with experts on Terrestrial Laser Scanning).

Aims: modeling ecological trajectories & inform conservation practices (EU 2030 target for Protected Areas).



Examples of Research Projects with a PhD position

Intra-articular use of regenerative substances in the treatment of canine osteoarthritis

Evaluation of the efficacy in terms of tissue regeneration and anti-inflammatory and pain-relieving effect of the intrarticular administration of stanozolol.

Use of Scaffolds obtained from biological tissues of donors for the treatment of substance losses and lesions of tissues and genital organs

Testing the effectiveness of using decellularized membranes obtained from foreskin of donors for the re-epithelialization of loss of substance

Innovations in the diagnosis of congenital skeletal diseases of the dog

Development of new protocols aimed at improving the diagnosis of congenital skeletal diseases in dogs, including a phase of fine-tuning of the method and a phase of experimentation on a national scale.



Examples of Research Projects with a PhD position

Neuromorphological Correlates of Nervous System Disorders

Aim of the Project



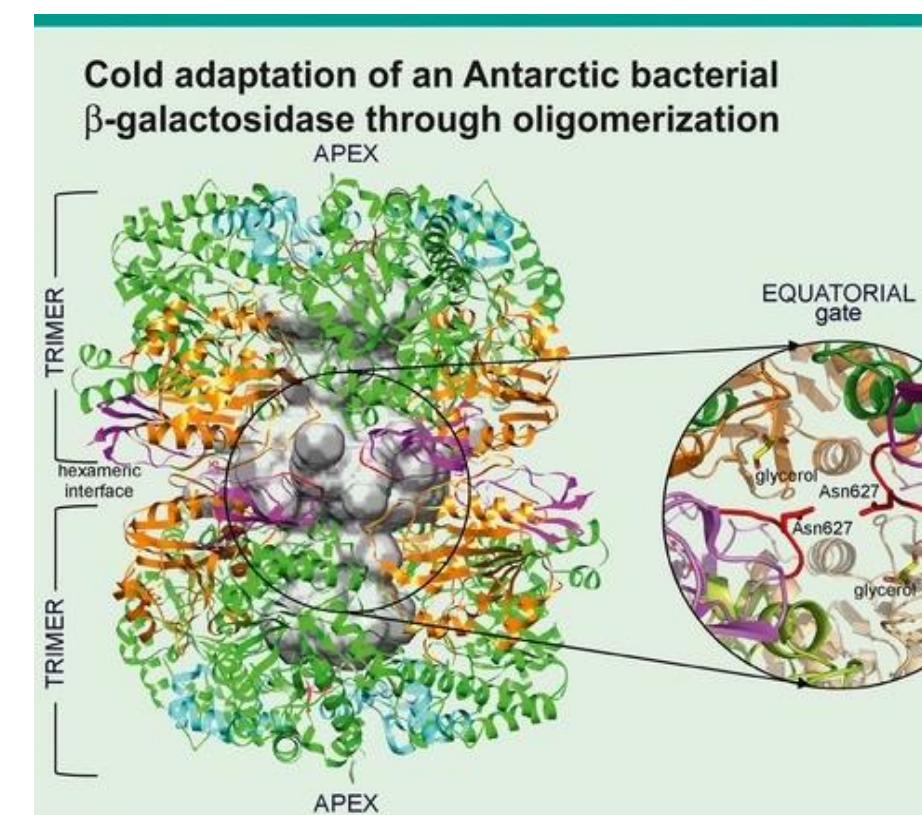
The aim of the project is to study different brain areas to evaluate the changes regarding the number and quality of neuronal and glial cells following a neurodegenerative disorder, chronic diseases like hypertension and obesity, or genetic disease as Huntington's disease.

Examples of Research Projects with a PhD position

Biomaterials from Antarctic bacteria: synthesis, analysis and characterization of the involved enzymes

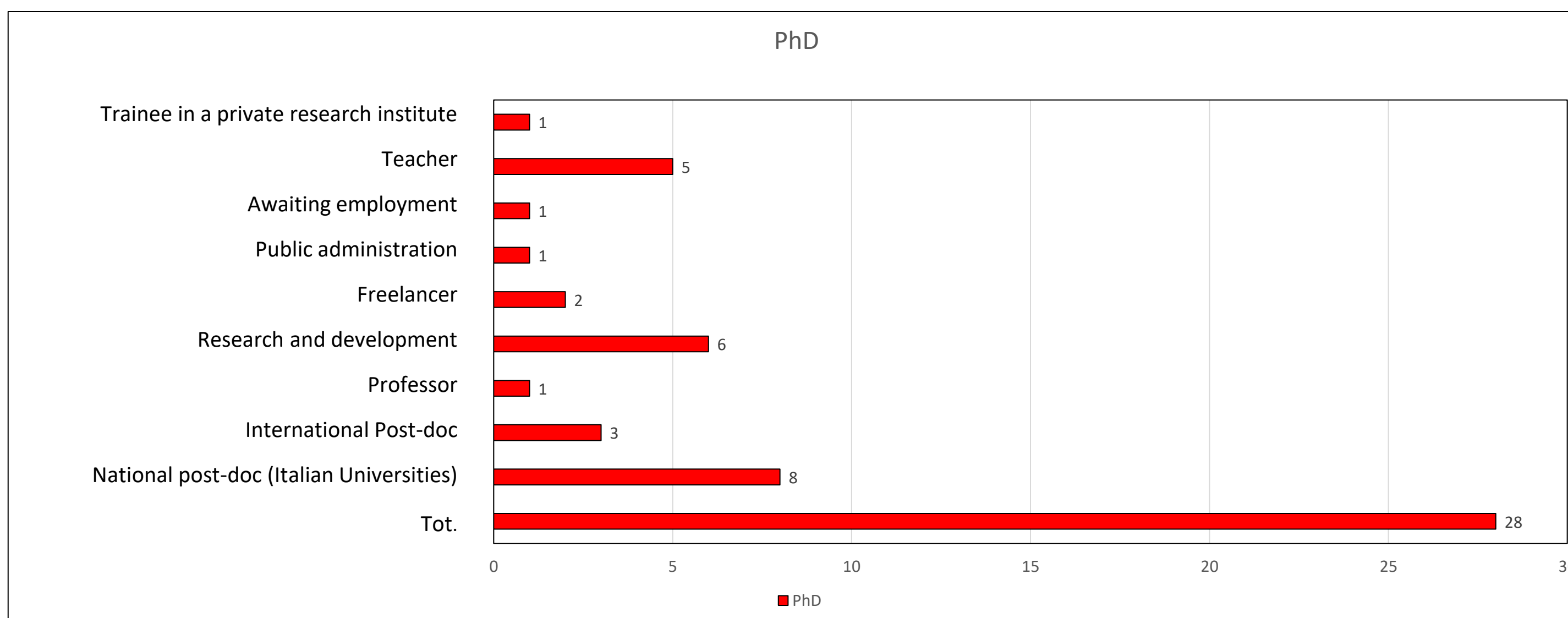
Aim of the Project

The aim is to study the ability of Antarctic bacteria to synthesize biomaterials from pure raw materials and waste products. The produced materials will be analysed and chemically characterized. Furthermore, putative enzymes involved in the synthesis pathways will be identified for their biochemical characterization.



CAREER OPPORTUNITIES AND PROFESSIONAL EMPLOYABILITY

The course, including the three curricula, prepares to the profession of researcher both in and out academia.



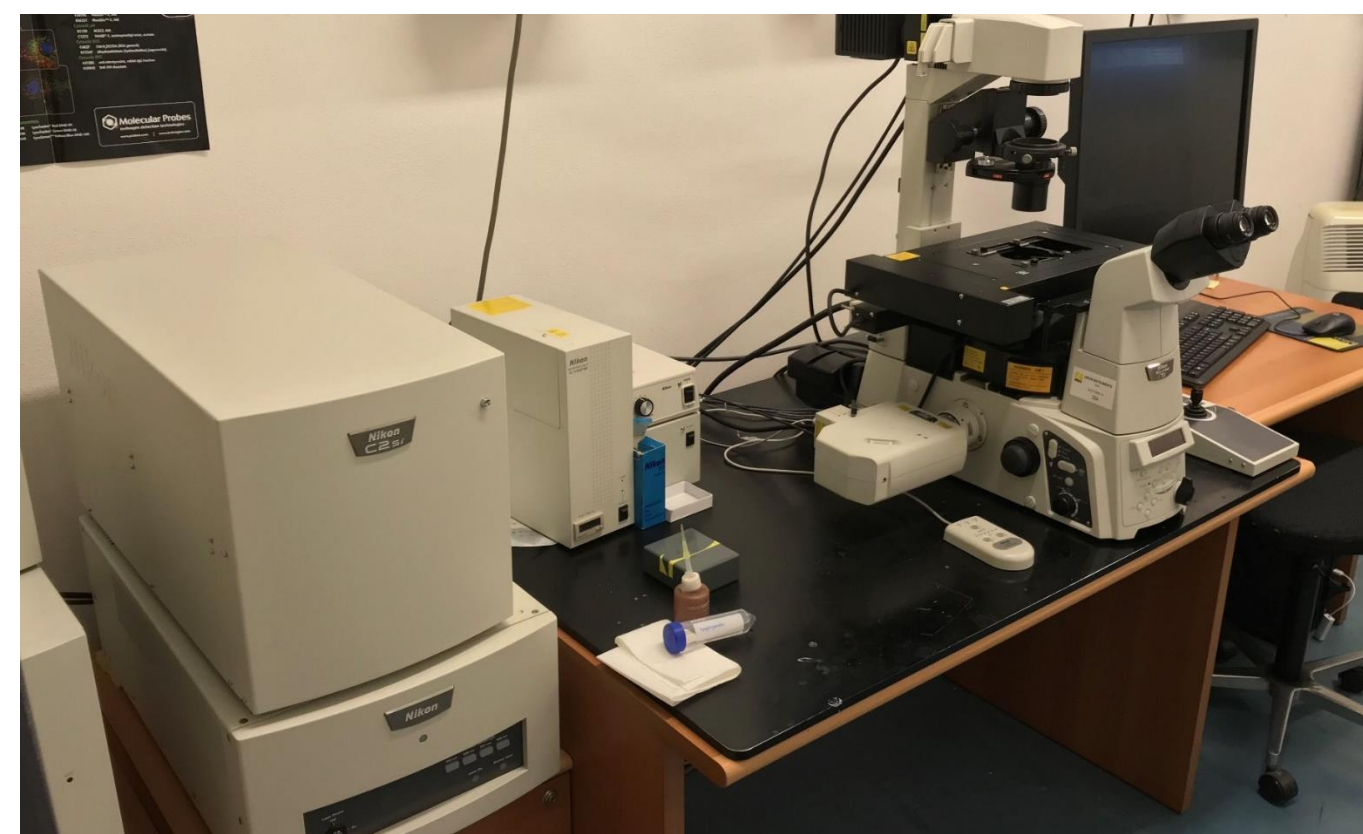
LIFE AND HEALTH SCIENCES

Research structures and facilities



Dept. of Biosciences - Camerino

Research structures and facilities



Research structures and facilities



Research structures and facilities



Insectarium - Camerino

Research structures and facilities



Animal Facility - Camerino

Research structures and facilities



Human Nutrition Lab - Camerino

Research structures and facilities



Research department
certified by the Italian
Ministry of
agriculture, food/fish
and forestry for
fishing activities
aimed at research,
studies and
experimental works



Partner of European
Marine Biological
Resource Centre
(EMBRC), a European
research
infrastructure that
provides researchers
and companies with
access to marine
organisms and the
facilities to study them.

Research Center - San Benedetto del Tronto

Research structures and facilities

Regional Natural Reserve Sentina



Research Center - San Benedetto del Tronto

Research structures and facilities

Sea Turtles Initial Reception/First Aid



Research Center - San Benedetto del Tronto

LIFE AND HEALTH SCIENCES

Research structures and facilities



Natural Reserve Montagna di Torricchio

Research structures and facilities



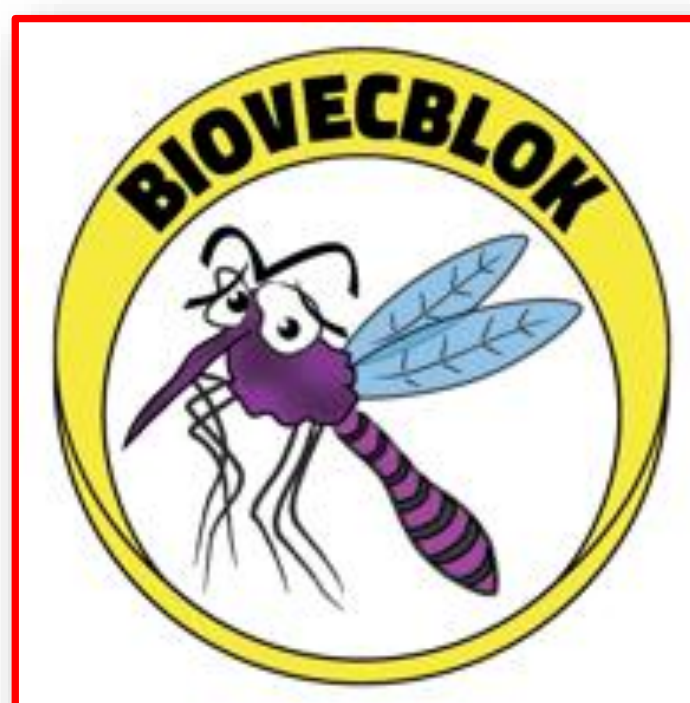
**Apennines Floristic Research Center - Barisciano (AQ)
Gran Sasso and Monti della Laga National Park**

Research structures and facilities



Veterinary Hospital - Matelica (MC)

Research toward entrepreneurship



Development of innovative strategies
for the control of mosquitoes borne
diseases such as
malaria, dengue, Zika virus,
chikungunya and yellow fever



Research toward entrepreneurship

SymbioTec[®]
LABORATORI

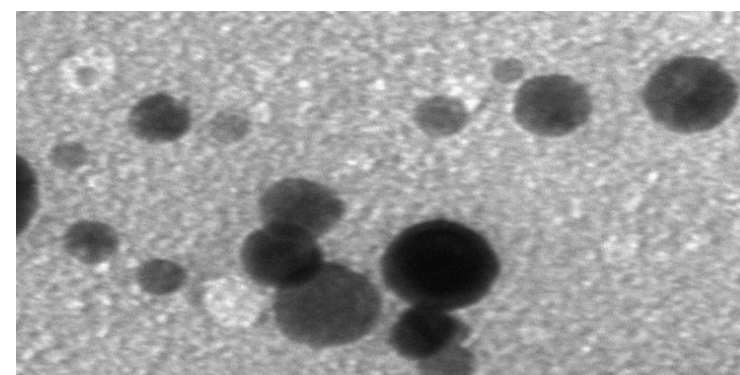
Research and development of
probiotics for applications in
human and animal nutrition



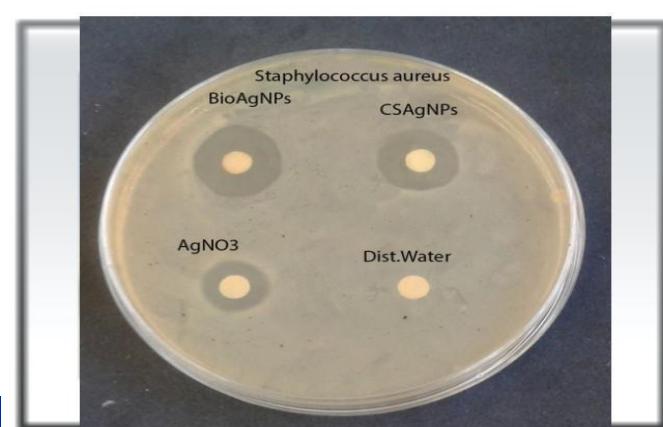
Research toward entrepreneurship



IrIdES: Innovative Environmental Solutions



Bioremediation
Biomaterials
Secondary metabolites
New antibiotics



International Academic Partnerships

Jilin Agricultural University (JAU), Changchun (Cina):

The agreement includes a doctoral programme in cotutelle with the doctoral candidates spending 18 months at JAU and the other 18 months at the University of Camerino. Common research areas are: Biosciences, Chinese Traditional Medicine and Veterinary Medicine.

Zhengzhou University of Light Industry (ZZULI), Zhengzhou (Cina):

The agreement includes a specific number of reserved PhD positions. Common research areas are: Biosciences and Veterinary Medicine, Food and Nutrition.

Liaocheng University, Liaocheng (Cina):

The agreement includes a specific number of reserved PhD positions. Common research areas are: Veterinary Medicine, Food and Nutrition.

Université Evangélique du Cameroun (UEC), Bandjoun (Cameroon):

The agreement includes a doctoral programme in cotutelle with the doctoral candidates spending 18 months at JAU and the other 18 months at the University of Camerino. Common research areas are: Biosciences and Veterinary Medicine.

LIFE AND HEALTH SCIENCES

Teaching Activities

Professor	Courses' title	ECTS	ECTS modulo	Shared with	Evaluation	Hours	Semester
De Felice Elena	Biology and Management of Laboratory Animals	2		-	Idoneità	14	II
Angeletti Mauro	Statistics	3		-	Idoneità	21	II
Cecarini Valentina	Biochemistry of ageing	2		-	Idoneità	14	II
Bellesi Michele De Vivo Luisa	Microscopy	2		-	Idoneità	14	II
Palermo Francesco A. Gabrielli Serena	Plastics to Microplastics: Aquatic Ecotoxicity	3		-	Idoneità	14	II
Vittadini Elena Bonfili Laura	Designing food for enhanced nutrition	3		-	Idoneità	21	II
Napolioni Valerio	Genomic and Molecular Epidemiology	2			Idoneità	14	I
Spurio Roberto	Theory and Applications in Microbial Biotechnology	2			Idoneità	14	II
Miceli Cristina	Genomics and proteomics	12	6	CdL in Biological Sciences LM-BS	Idoneità	84	I
Angeletti Mauro			3				
Mozzicafreddo Matteo			3				
Bordoni Laura	Epigenetics	6		CdL in Biological Sciences LM-BS	Idoneità	42	II
Cardelli Maurizio							
Favia Guido	Molecular Parasitology	6		CdL in Biological Sciences LM-BS	Idoneità	42	I
Pucciarelli Sandra	Molecular Ecology	6		CdL in Biological Sciences LM-BS	Idoneità	42	I
Pucciarelli Stefania	High performance bio-analytical methods	6		CdL in Biological Sciences LM-BS	Idoneità	42	I
Sabbieti Maria Giovanna	Stem cell technologies and animal models	12		CdL in Biological Sciences LM-BS	Idoneità	84	I-II
Silvi Stefania	Functional Food	6		CdL in Biological Sciences LM-BS	Idoneità	42	I
Vitali Luca Agostino	Microbial Pathogenesis and Biofilms	6		CdL in Biological Sciences LM-BS	Idoneità	42	II