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)
LIFE AND HEALTH SCIENCES

RESEARCH AREAS

- Health and wellbeing of animals and human beings
- Environmental sustainability
- Food and nutrition
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
Examples of Research Projects with a PhD position

*Plant diversity and forest structure*

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).

Adopt a field experimental system across management gradient and oldgrowth.
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.
The course, including the three curricula, prepares to the profession of researcher both in and out academia.
Research structures and facilities

Dept. of Biosciences - Camerino
LIFE AND HEALTH SCIENCES

Research structures and facilities
LIFE AND HEALTH SCIENCES

Research structures and facilities
Research structures and facilities

Insectarium - Camerino
LIFE AND HEALTH SCIENCES

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
LIFE AND HEALTH SCIENCES

Research structures and facilities

Regional Natural Reserve Sentina

Research Center - San Benedetto del Tronto
LIFE AND HEALTH SCIENCES

Research structures and facilities

Sea Turtles Initial Reception/First Aid

Research Center - San Benedetto del Tronto
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
LIFE AND HEALTH SCIENCES

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

Research and development of probiotics for applications in human and animal nutrition
LIFE AND HEALTH SCIENCES

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.
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