

# OVERVIEW OF THE COURSE: Animal housing and environmental impact

## Module of: Housing, planning and design

Study programme name  
Precision Livestock Farming.

☐ Course

☒ Master degree

A.A. 2019/20

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SSD

CFU

Year

Term

Prerequisites: none

### EXPECTED LEARNING RESULTS/RISULTATI DI APPRENDIMENTO ATTESI

<b>Knowledge and understanding skills/Conoscenza e capacità di comprensione</b>
Understanding the housing facilities required for livestock health and welfare: <ul style="list-style-type: none"> <li>- Animal environment in the housing system;</li> <li>- Optimal microenvironmental conditions (temperature, humidity, and concentrations of gases and particulate matter);</li> </ul> Dimension standards for housing, feedlots and exercise areas required for: <ul style="list-style-type: none"> <li>- Cattle and Buffalo (including milking systems);</li> <li>- Pigs, poultry and sheep.</li> </ul> Strategies for manure management Sensing technology for assessing microclimatic conditions.
<b>Applied knowledge and understanding skills/Conoscenza e capacità di comprensione applicate</b>
How to ensure animal welfare by controlling microenvironmental conditions in the barn. Assessing the energy balance at housing system level. Dimensioning different phases/facilities related to animal husbandry.
<b>Any further learning outcomes expected in relation to/Eventuali ulteriori risultati di apprendimento attesi, relativamente a</b>
<ul style="list-style-type: none"> <li>• <b>Autonomy of judgment/Autonomia di giudizio:</b> The student must know the solutions and be able to follow the advancements in livestock housing</li> <li>• <b>Communication skills/Abilità comunicative:</b> Calculation of number of stalls needed to rear a given number of total heads for each species studied. Dimensioning a livestock housing system, composed by multiple units</li> <li>• <b>Learning skills/Capacità di apprendimento:</b> Dimensioning of livestock housing and facilities with spreadsheet and designing basic layouts with computer-aided design software</li> </ul>

### COURSE MAIN CONTENTS/PROGRAMMA

1.	Animal housing
1.1.	Animal environment in the housing system
1.2.	Microenvironmental conditions (temperature, humidity, and concentrations of gases and particulate matter)
1.3.	Air conditioning
1.4.	The basics of the regulatory process
1.5.	Housing, feedlots, and exercise areas
1.5.1.	Cattles
1.5.2.	Buffalos
1.5.3.	Milking systems
1.5.4.	Pigs
1.5.5.	Poultry
1.5.6.	Sheep
1.5.7.	Integrated production systems
1.5.8.	Manure management and treatment strategies
2.	Sensing technology for assessing microclimatic conditions

### COURSE MATERIAL

- Lecture notes provided during the course.

### TARGET AND MODALITY AIMED TO ASSESS THE LEARNING RESULTS

a) Learning results to be verified/Risultati di apprendimento che si intende verificare:

The student must be able to solve a livestock farm sizing exercise for any type of species treated during the course.

b) Assessment method/Modalità di esame:

Examination includes	Written test and oral		Written test	x	Oral	X
Project report discussion						X
Other procedures (specify)						
Written test - questions ask for (*)	Multiple answers		Free answers		Numerical exercises	x