SCUOLA DI SCIENZE AGRARIE, FORESTALI, ALIMENTARI ED AMBIENTALI

COURSE: Sustainable animal production	
ACADEMIC YEAR: **2018-2019**	
TYPE OF EDUCATIONAL ACTIVITY: affine	
TEACHER: Fabio Napolitano	
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Language: Italian	

ECTS: 6 (5 credits: lessons; 1 credit: seminars, farm and laboratory practice)	n. of hours: (lessons e tutorials/practice) 40 lessons 16 seminars, farm and laboratory practice	Campus: Potenza School: SAFE Program: MSc Food Science and Technology	Semester: I

EDUCATIONAL GOALS AND EXPECTED LEARNING OUTCOMES

The aim of the course is providing basic knowledge on the environmental and ethical sustainability of animal based enterprises. In addition, the course aims to supply the appropriate information for a reliable evaluation of the impact of farms on the environment and on animal welfare. At the end of the course, the students will be able to perform the assessment of the environmental impact of various animal based enterprises. In addition, they will know the main tools needed to monitor the welfare of the animals at farm level. The main positive and negative effects of different farming systems will be also recognized.

- **knowledge and understanding:** Knowledge of the main intensive and extensive farming systems. Knowledge of the aspects affecting competition with human nutrition, biodiversity, animal welfare, environmental impact in terms of soil acidification, water consumption, marine water eutrophication, land use, non-renewable energy use. Knowledge of the Council directive on concerning the protection of waters against pollution caused by nitrates from agricultural sources. Knowledge of the methods for the evaluation of the environmental impact of various animal productions (i.e. Life Cycle Assessment) and the assessment of animal welfare at farm level (i.e. Welfare Quality, AWIN). Additional information concerning an example of sustainable animal farming system (i.e. organic farming), the Environmental Product Declaration and the potential effect of expectancy about the product on consumer liking and willingness to pay will be provided.
- **applying knowledge and understanding**: Ability to assess the effect of various farming systems on the environment in terms of soil acidification, water consumption, marine water eutrophication, land use, non-renewable energy use. Ability to assess the effect of various farming systems on the welfare state of the animals.
- **making judgements**: At the end of the course, students will be able to understand the best technical choices to minimize the impact of various farming systems on the environment and on the welfare state of the animals. They will also to be able to produce, in a critical and autonomous way, oral presentations or written reports on topics treated during the lectures.
- **communication skills**: Ability to communicate the effect of farming on the environment and on the animals to both non-technical and technical audiences. Ability to exhibit, synthetically and effectively, using appropriate scientific and technical terms, a finalized work on issues concerning environmental sustainability and animal welfare. Ability to interact and communicate with farmers in the development and implementation of environmental and animal welfare friendly farming practices and products. Ability to interact and communicate with food business operators to promote environmental and animal welfare friendly products.
- **learning skill**: Ability to access and understand data on environmental impact and animal welfare of various farming system. Ability to access technical and scientific data and summarize them.

PRE-REQUIREMENTS

A basic knowledge concerning animal production is required

SYLLABUS

CFU-1 (8 h, lectures): Farming systems

The students will receive information about the farming practices of the main farm animal species. The attention will be focussed on cattle, pigs and poultry kept in intensive and extensive management systems. Aspects concerning growth and development of animal raised for meat, milk production and milking best practices and egg production will be also tackled.

CFU-2 (8 h, lectures): Environmental impact

The following aspects will be covered: production efficiency, environmental impact in terms of soil acidification, water consumption, marine water eutrophication, land use, non-renewable energy use. Notions on the Council directive concerning the protection of waters against pollution caused by nitrates from agricultural sources will be also given.

CFU-3 (8 h, lectures): Life Cycle Assesment (LCA)

The attention will be focussed on the minimisation of the competition with human nutrition and on biodiversity preservation. Basic notions on LCA will be provided including; identification of scope and aim, identification of the functional unit, inventory analysis, boundary system definition, life cycle impact assessment, interpretation of the results.

CFU-4 (8 h, lectures): Animal welfare

Notions on behavioural needs and the expression of abnormal behaviour, including stereotypies, as a consequence of frustration, will be provided, along with the main indicators (animal based, resource and management measures) to be used for reliable on farm welfare assessment.

CFU-5 (8 h, lectures): Current legislation on organic farming and animal welfare

EU directive and regulations on the protection of animals on farm and during transport and slaughter will be illustrated along with the main regulations on organic farming.

CFU-6 (16 h, lectures): Practices

Seminar, laboratory and farm practice will be conducted in order to acquire the ability to assess the effect of various farming techniques on animal welfare and on the environment.

TEACHING METHODS

Theoretical lessons (40 hours), seminars, laboratory and farm practices (16 hours). The maieutic approach will be followed.

EVALUATION METHODS

Oral examination, based on the assessment of theoretical knowledge and laboratory practices.

TEXTBOOKS AND ON-LINE EDUCATIONAL MATERIAL

On line educational material available at https://elearning.unibas.it/course/view.php?id=39

Textbooks:

- E. Kebreab. 2013. Sustainable Animal Agriculture. CAB International Publishing, UK.
- D. Broom, A. Fraser. 2015. Domestic Animal Behaviour and Welfare. CAB International Publishing, UK.

INTERACTION WITH STUDENTS

At the beginning of the course, objectives, program and methods of evaluation will be described; furthermore, it will be collected the list and data of students attending the course and a WhatsApp group will be created in order to generate a bi-directional flow of real-time information. During the lessons, teaching materials will be provided in shared folders through the local E-learning platform. Students may contact the teacher anytime by e-mail and WhatsApp for clarifications or to set an appointment in his office at SAFE, IV floor, Viale dell'Ateno Lucano 10, Potenza. Office time: Tuesday 9.00 – 11.00, Wednsday 9.00 – 11.00 and Thursday 11.00 – 13.00.

EXAMINATION SESSIONS (FORECAST)

Whenever requested, a date will be agreed with the students. The provisional calendar includes the following dates: 13 and 20 February 2019, 13 March 2020, 23 April 2020, 14 May 2020, 17 June 2020, 8 and 22 July 2020, 17 September 2020, 15 October 2020, 5 November 2020, 16 December 2020, 27 January 2021

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EXAMINATION BOARD

Fabio Napolitano, Ada Braghieri, Corrado Pacelli

SEMINARS BY EXTERNAL EXPERTS YES X NO □

FURTHER INFORMATION