**Science of Planet Earth and Nutrition (Including a Workshop on Food Education and Earth Science)**

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***COURSE AIMS AND INTENDED LEARNING OUTCOMES***

*Course aims*

The course's general aim is to introduce students to the role of food, nutrients and terrestrial environmental conditions and dynamics in the health and well-being of the person, in particular the child.

The specific learning objectives of the course are:

For the Nutrition stream: to provide students with up-to-date and specific knowledge and understanding of the biochemical structures of nutrients, their presence in the different food classes, food production, the hygienic-sanitary quality of food, biological pollution of foods and nutritional needs and the phenomena of malnutrition related to lifestyles with an outline of eating disorders.

For the Earth Sciences stream: to provide basic knowledge of the structure and "functioning" of the planet Earth, seen as a set of systems interacting with each other and with the biosphere. The impact of man on the different systems and the repercussions this has on man's "health" and "well-being" will also be analysed.

Specific learning objectives common to both streams are: knowing and applying the scientific method, helping students develop the ability to apply knowledge, understanding and judgment in the selection of scientific sources for the two disciplines, in the research and selection of international scientific databases, in the development of activities based on the scientific method and scientific research, in the analysis and selection of texts specifically dedicated to nursery and primary schools, in the scientific dissemination of experimental activities, and in the development of a specific language.

*Intended learning outcomes*

*Knowledge and understanding*

At the end of the course, students will have acquired the principles of the scientific method as a means of investigation and interpretation of the natural world.

For the part of Earth Sciences they will know: the main systems and elements that make up the planet Earth and regulate its evolution, the cause and effects of the main natural phenomena which the child can witness, the interactions between man and the environment.

For the Nutrition part, they will know what nutritional lifestyles and foods are suitable for children and adults.

*Ability to apply knowledge and understanding*

At the end of the course, students will be able to place the main natural phenomena that are part of the child's world within the more complex Earth system and will be able to recognise the effects of their behaviour on nature; they will also have acquired the ability to recognise some natural hazards that can directly affect the health/safety of children.

As regards the Nutrition part, they will be able to identify and deal with any states of malnutrition and pathological conditions deriving from incorrect lifestyles.

*“Independent judgement”, “Communication skills” and “Learning ability”*

Students will be able to understand the world around them in order to find links between the theoretical part of the subject taught and the world/experiences of the child, contextualised in the local reality. They will also be able to plan and implement didactic, frontal and workshop activities aimed at the health and well-being of the little child and at understanding the phenomena that govern planet Earth dynamics with a view to developing ecological awareness. They will be able to create simple science dissemination models using the specific language of the subject.

***COURSE CONTENT***

The course programme is divided into two parts: Science of Planet Earth and Science of Nutrition

*The Earth as a self-regulated system*: basic principles of terrestrial dynamics and evolution, the components of the Earth system, rocks, geological and geomorphological processes, the soil, the atmosphere and the hydrosphere, relationships between the biosphere and the other elements of the Earth system, *elements of environmental hygiene* with reference to the main pollutants and anthropogenic modifications in the different systems; *elements of food science*: biochemistry of foods, foods of animal and plant origin, modified, functional, and organic foods, GMOs, "*novel foods*", food security: *elements of food hygiene*: microbiological and hygienic aspects of the main foodstuffs, contaminating prokaryotes, food-borne infections, poisoning, adulterations, food preservation; *elements of human nutrition:* historical, anthropological and physiological aspects of the child’s use of food and nutrients. *Elements of analysis of malnutrition*: damage to health caused by incorrect lifestyles and pathological conditions, eating disorders.

The course is integrated with didactic-workshop activities held by experts and characterised by specific themes and methodologies agreed with the lecturer.

Each workshop session will be aimed at the production of a project/artefact assessed by the experts based on parameters shared with the lecturer and on criteria of: completeness, consistency, originality, didactic use.

***READING LIST***

– Alfonso Bosellini, *Le scienze della Terra* Zanichelli, Bologna: Second edition - 2020. Zanichelli, the following texts:

First biennium volume

ISBN: 9788808720580 (paper editon + digital) or ISBN: 9788808853691(digital edition)

Second biennium volume

ISBN: 9788808423962 (paper editon + digital) or ISBN: 9788808188052 (digital edition)

Fifth year volume

ISBN: 9788808503251 (paper editon + digital) or ISBN: 9788808953537 (digital edition)

– Optional, for in-depth and consultation only

Grotzinger J. P., Jordan T.H.:*Capire la Terra***,** 2016 - Zanichelli ISBN: 9788808821232 (paper + digital edition) or ISBN: 9788808126979 (edizione digitale).

– A.Andreoli, *Fisiologia e Nutrizione Umana,* Esculapio, Bologna, ISBN: 9788893851381.

– M.C.Marazzi, L.Palombi, S.Mancinelli, E.Buonomo, G.Liotta, P.Scarcella, *Nutrizione e Salute, la basi conoscitive per una corretta educazione alimentare,* Piccin, Padova, ISBN: 9788829928163.

– G. Rotilio, *Il migratore onnivoro,* Carocci, Roma, 2012. ISBN: 9788843065073.

– Optional, for in-depth and consultation only, C.Pignatti, *Biochimica della Nutrizione,* Esculapio, Bologna, 2022. ISBN: 9788893852852.

***TEACHING METHOD***

The course includes lectures with slides support and classroom workshops. Lectures will focus on current syllabus contents, at national and international level; they will also introduce students to the identification and retrieval of sources. The course is held in Italian and will include the use of lexis, glossary, and text material typical of scientific literature, as well as educational tools, and databases in English. Interventions by external experts on insights into individual topics may also be part of the course.

***ASSESSMENT METHOD AND CRITERIA***

The exam for the achievement of the ECTS credits will include an interview with the lecturer and the examination commission for the analysis and critical re-elaboration of the contents learned and the assessment of the worshop activities included in the course; these may lead to an increase of up to 2 points on the final assessment.

Interim tests may be scheduled at the end of the individual disciplinary areas.

Assessment will take place through interim tests at the end of each disciplinary area. It will focus on students' acquisition of specific knowledge, their participation in course activities, their willingness to share contents (on traditional and multimedia tools), and their ability to identify and organise sources. During the workshop activities, assessment will be based on students' participation and ability to carry out cooperative and collaborative activities, on their personal contribution to the activities proposed, and management of their working time. The interim testing of acquired knowledge will include different activities, small group research and further investigation work, analysis of the evaluation grids specific for projects or practical assignments included in the workshop activities.

***NOTES AND PREREQUISITES***

*Notes*

Lesson attendance is not compulsory but it is recommended whenever possible. Attendance at the workshop is compulsory.

The teaching material proposed in class and any insights that may emerge during the course will be made available to students in digital format. The reading list specified in the appropriate section is recommended; more detailed information on the parts of the text useful for the exam will be provided during the course.

During lectures and workshops students may be required to work on their personal laptops, tablets, or smartphones.

Since it is an annual course, only a part of the ECTS credits will be recognised for Erasmus students who do not attend the entire course; Erasmus students are therefore kindly invited to contact the relevant offices and the lecturer in advance.

*Prerequistes*

There are no content-related prerequisites for attendong the course. However, students are expected to have curiosity and interest in the subject and in the comparison between what they learned in class and their daily experience.

Further information can be found on the lecturer's webpage at http://docenti.unicatt.it/web/searchByName.do?language=ENG or on the Faculty notice board.