



The new Unimore interdisciplinary teaching on transversal sustainability skills

*Grazia Ghermandi**, *Francesca Despini*

Department of Engineering Enzo Ferrari, University of Modena and Reggio Emilia, Via Pietro Vivarelli 10, 41125 Modena, Italy

* corresponding author: grazia.ghermandi@unimore.it

Article Info

Received:
14 March 2022
Accepted:
25 May 2022
Published:
1 August 2022

DOI:
[10.14710/jsp.2022.15534](https://doi.org/10.14710/jsp.2022.15534)

*Presented in the 7th
International (Visual)
Workshop on UI
Greenmetric World
University Rankings
(IWGM 2021)*

Abstract. The global situation of the Covid-19 pandemic has changed several aspects of University life and management. In this context, the University of Modena and Reggio Emilia (Unimore) has introduced a new course for all of its students called "Transversal Skills on Sustainability". This course consists of 13 Modules offered by the various Unimore Departments to address the issue of Sustainability at 360 degrees. Each Department offers a thematic module concerning Sustainability in its own field of study and research. The course ranges from engineering issues with renewable energy, waste, air quality, to economics and sustainable finance. In addition, the course deals with issues related to sustainability in the medical, chemical and legal fields and many others. In this first year of delivery, this teaching has proven to be highly appreciated among students. Over 950 students have enrolled in teaching for the 2020/2021 academic year. Enrolled students come from all areas of the university: there are students of engineering, geology, economics, chemistry, but also of medicine, pharmacy, and many others.

Keyword:

Education, Sustainability, Multidisciplinary, global approach

1. Introduction

The theme of Sustainability and all the sub-topics related, are extremely important issues today. All citizens should have training on sustainability issues or it will not be possible to achieve the goals of the Paris Agreement or, for example, the European 2030 Agenda.

In this context, the world of schools has a fundamental role: to teach sustainability and its importance from first level schools. Universities also play a key role in this sense because they must show themselves as active examples of sustainability.

The Sars-COV2 pandemic has revolutionised many aspects of our life. It has changed our habits, our way of life and certainly the world of school at all levels, from primary school to university.

The new methods of distance learning that were adopted due to the pandemic initially got several problems. Later, however, some advantages of this type of teaching emerged and students and teachers have learned to use it appropriately.

The University of Modena and Reggio Emilia (Unimore) has therefore decided to take advantage of distance learning to create a new teaching on the issues of Sustainability.

The new teaching was called "Transversal Skills on Sustainability". The aim is to give students soft sustainability skills that are different from those they can acquire in their course of study. Unimore wants to provide students an overview of Sustainability in its many aspects with particular reference to the 2030 Agenda, the Green Deal and the 17 Sustainable Development Goals.

This new teaching is part of a broader framework of actions implemented by Unimore for Sustainability. Unimore strongly believes in the importance of Sustainability. It is part of the RUS Network (Network of Universities for Sustainable Development) [1]. Furthermore, two years ago, the "Unimore Sostenibile" group has been working on various sustainability actions within the University [2].

2. Course Structure

The teaching of "Transversal Skills on Sustainability" was delivered, for the first time, in the second semester of the academic year 2020/2021.

The course is open to all students of the University of Modena and Reggio Emilia belonging to any degree course and no prerequisites are needed.

The course provides 3 CFU (Credits) and provides an eligibility, not a score.

The course is structured as follows:

- a first lesson for all students on Sustainability;
- 12 Modules offered by the Unimore Departments.

The first lesson is mandatory, and it is focused on the general concept of Sustainability, the 2030 Agenda, Green Deal, the 17 SdGs (Sustainable Development Goals) and the situation in Italy. This lesson uses part of the material provided to the RUS Network by ASVIS (Italian Alliance for Sustainable Development) [3].

The 12 Modules decline sustainability in its various aspects. The student must choose three modules from those offered by the Unimore Departments. Each module consists of some lessons (typically three or four) and lasts from 6 to 9 hours. The student must therefore attend the lessons of the Module and pass the final test. For personal interest the student can attend more than 3 modules (but the course is still worth 3 CFU regardless of how many modules the student attends).

Table 1. Description of the 12 Modules

Department	Module title
DSLCL	Department of Linguistic and Cultural Studies Nature
DESU	Department of Education and Human Sciences Between ecologically, sustainable and ethically proposed education
DGIUR	Department of Law The realization of the 2030 Agenda for sustainable development: new challenges and new opportunities in the Covid-19 period
FIM	Department of Physical, Computer and Mathematical Sciences Sustainability of photovoltaics
DSV	Department of Life Sciences Life Sciences for a sustainable man / environment relationship
DIEF	Department of Engineering Enzo Ferrari Engineering for Environmental Sustainability
DEMB	Department of Economics Marco Biagi Sustainable economics and finance
DSCG - chemistry	Department of Chemical and Geological Sciences Chemistry for Sustainable Development
DSCG - geology	Department of Chemical and Geological Sciences Climate change: a journey through time, from the past to the future
DISMI	Department of Sciences and Methods for Engineering Environmental sustainability at an industrial level
BMN	Department of Biomedical, Metabolic and Neuroscience Sciences Environment and Health
DSCG - natural sciences	Department of Chemical and Geological Sciences The use of minerals for Environmental Sustainability

Each Department offers a thematic module regarding Sustainability in its own field of study and research. The course ranges from engineering issues with renewable energy, waste, air quality, to economics and sustainable finance. In addition, the course deals with issues related to sustainability in the medical, chemical and legal fields and many others.

Table 1 shows the different Modules offered by the Unimore Departments with the topics covered.

To facilitate the use of the course, a specific webpage has been created. On this page information about the course are provided: links to the lessons, course materials, tests, etc.. The Expected results of this course are:

- Understanding and knowledge of the meaning of Sustainability in its many aspects.
- Knowledge of the declination of sustainability in the various academic fields and its practical implications in everyday life.

Acquisition of the topics covered by the modules, possession of basic information in the individual areas, argumentative ability, communication skills

3. Attendance and Results

The new teaching found great enthusiasm from all the students of the University of Modena and Reggio Emilia.

A remote live meeting was organised in mid-February 2021 to explain to all interested parties how to attend the course. The teaching officially started on March 1, 2021 and ended on June 4, 2021.

A total of 971 students enrolled in the course. Among these, 93% followed to obtain the 3 credits while 7% attended the course for personal interest (Figure 1).

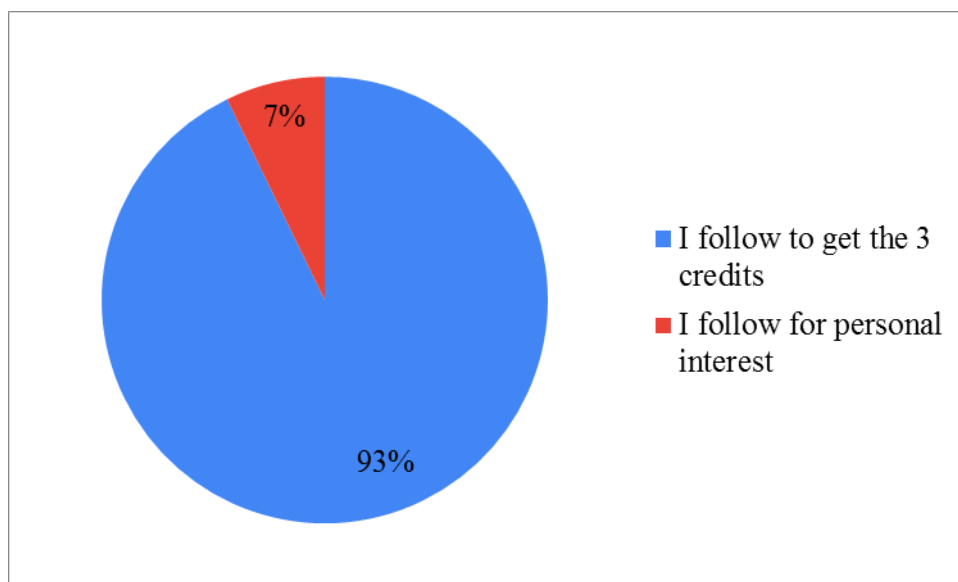


Figure 1. Division between students who have followed the course to obtain the 3 credits and those who have followed it for personal interest

Through a special questionnaire, various data were collected from the students.

Students enrolled in the course come from all Unimore Departments. Most of the students come from the Department of Sciences and Methods for Engineering (34%) and from the Department of Engineering “Enzo Ferrari” (16%). Interestingly, there are also students enrolled by Departments that typically have very strict study plans such as the Faculty of Medicine and Surgery (2%) (Figure 2).

The students chose the modules based on their personal interests. They were advised to choose Modules offered by Departments other than their own.

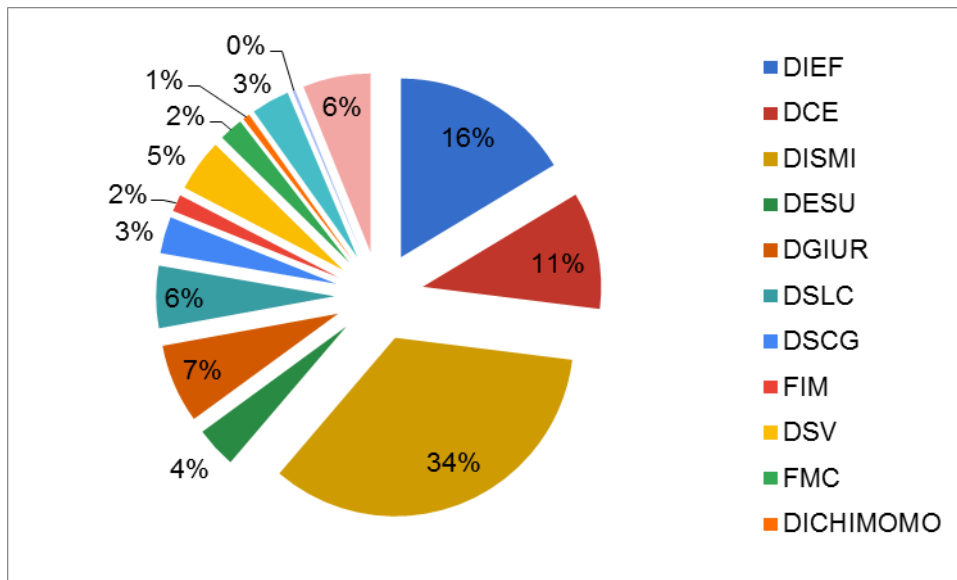


Figure 2. Belonging Departments of students who attend the course

The graph in figure 3 shows the percentages of students enrolled in the various modules. The two most followed modules are those of the Department of Law (14.6%) and of Economics Marco Biagi (14.2%).

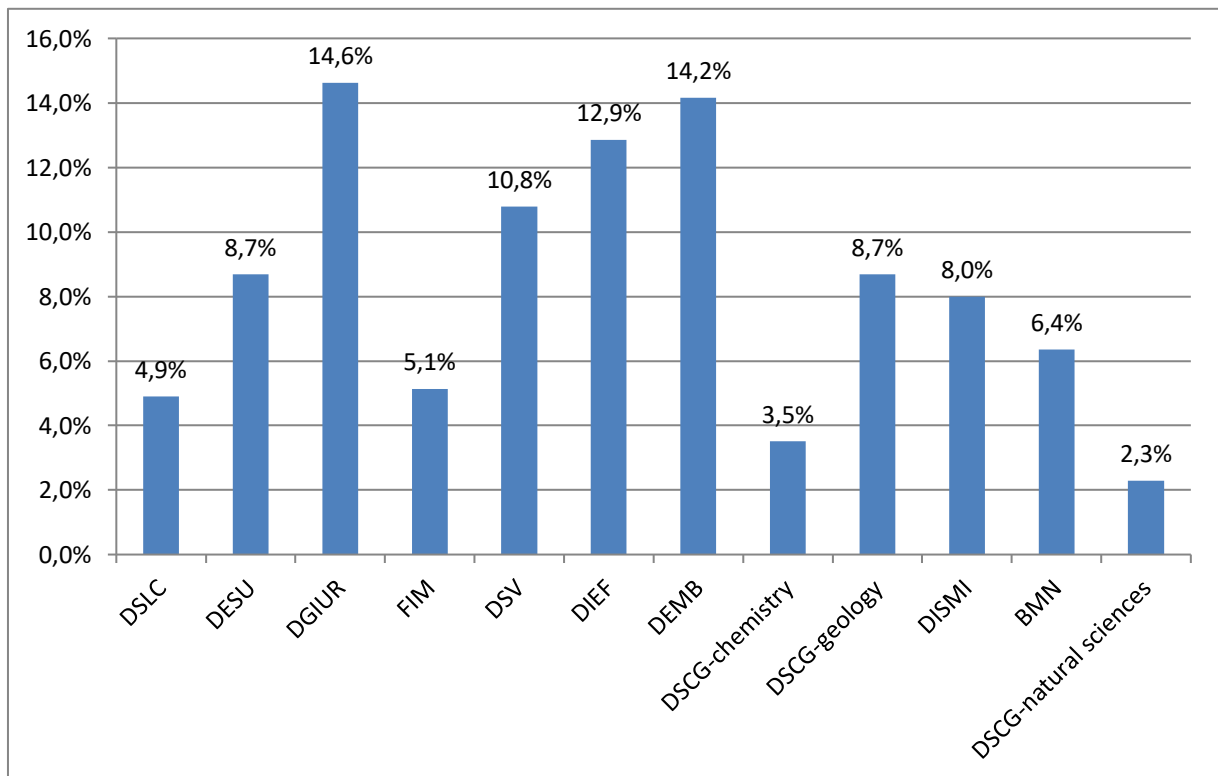


Figure 3. Percentage of students enrolled in the 12 modules offered by the Unimore Departments

The comments provided by some students were very positive. Table 2 shows some examples of remarks.

Table 2. Some example of students' remarks

Students' remarks
I believe that nowadays it is very important to inform yourself about the development of global warming and the consequences that will happen if we ourselves do not change in the first place, we do not help environmental sustainability.
I believe that the topic of sustainability will have an increasing importance in the future, this course is an opportunity to deepen the topic through different points of view
I think it is an extremely topical issue that will acquire ever greater relevance so it is better to be documented on the subject also because it has repercussions on every area of human life
I would like to learn new concepts and information also external to my course on issues relating to the environment and sustainability
It is an excellent initiative
I chose to take this course because I strongly believe that there is a need for a change in the way we do things. We are the future architects of this change and we need all the information possible to make it happen.
I have a great interest in sustainability
the course is of great interest to me also in view of the enormous socio-economic and climatic changes to better prepare to build a possible future.
The course is of interest to me as it will allow me to learn about and deepen current issues related to sustainability.
In a world where the environment is less and less, it is advisable to have knowledge to save it.
It frames emerging opportunities very well
I am fascinated by the topics covered
I believe that nowadays it is very important to inform yourself about the development of global warming and the consequences that will happen if we ourselves do not change in the first place, we do not help environmental sustainability.
I believe that the topic of sustainability will have an increasing importance in the future, this course is an opportunity to deepen the topic through different points of view

Two exams for the registration of CFUs have been fixed in June and July, and a third exam will be available in September. Currently, 350 students have already passed the tests and registered their eligibility in the university booklet.

4. Concluding Remarks

The course "Transversal Skills on Sustainability" delivered for the first time in 2020/2021, satisfied both the organisers and the students.

There have been some problems related to the organisation of the course, to streaming platforms, to the inclusion of credits in university careers.

These problems have been solved and will serve to improve the course in the coming years. For the year 2021/2022 the course is scheduled to start in March 2022 similar to the previous year.

5. Acknowledgement

We thank the University of Modena and Reggio Emilia for having believed in this new teaching. In particular, thanks to Prof. Cabri, Rector's Delegate for Didactics, Raffaella di Toma and Francesca Gianasi who contributed to the general organisation of the course and to solving several problems. Thanks to all the academic secretariats and teaching offices of the University who patiently answered the students' doubts and solved many problems.

Thanks to the Sustainability representatives for each Departments and to all the teachers of the course for their valuable contribution: M.C.Santini, A.Zambon, M.Soldati, D.Malferrari, S.Benvenuti, C.Torricelli, A.M.Ferrari, M.Montangero, A.La Vergata, S.Grappi, T.Altiero, M.Vinceti, G.De Santis, L.Cerrocchi, A.D'Antone, L.Bianchi, A.Rapini, M.Gestri, A.Tampieri, T.Casadei, S.Manservisi, V.De Renzi, M.Rossi, C.Sorbi, M.P.Costi, L.Solieri, R.Simonini, P.Messi, L.Maistrello, A.Bigi, G.Allesina, I.Lancellotti, L.Barbieri, U.Kocollari, V.Venturelli, A.Pedrazzoli, A.Perosa, F.Faglioni, E.Rambaldi, G.Lusvardi, L.Tassi, A.Ferretti, F.Bosellini, F.Ronchetti, R.Gamberini, L.Montorsi, F.Gobba, A.Modenese, S.Ferrari, A.Gualtieri, P.Di Giuseppe, R.Arletti.

Last but not least thanks to all the students that attended the course.

References

1. RUS, Rete delle Università per lo Sviluppo Sostenibile. Available online at <https://reterus.it/>
2. Unimore Sostenibile website. Available online at <https://www.unimoresostenibile.unimore.it/>
3. ASVIS, Alleanza Italiana per lo Sviluppo Sostenibile. Available online at <https://asvis.it/>