DOCTORATE COURSE:
"Biotechnology and smart practices for a sustainable management of natural resources, food and agriculture"

INDIVIDUAL EDUCATIONAL PLAN

CYCLE XXXVIII

STUDENT	**TAYYABA GULL**
TUTOR	**Prof. Matteo Francavilla**
CO-TUTOR	**Ing. Mario Fedele**

CURRICULUM	**1** ***Sustainable Agriculture, Natural Resources and Biodiversity*** ■ **2** ***Emerging Technologies for Ensuring Food Quality and Safety*** □
AREA OF RESEARCH INTEREST	The object of the research project is the "Upcycling of organic matter through combined biochemical (anaerobic digestion) and thermochemical (pyrogasification) processes". In particular, it will develop along three contextual guidelines: a) Biogas treatment for upgrading purposes (H_2S and CO_2 adsorbtion), developing and using low-cost technologies based on solid and liquid state adsorbent matrices; including also the possibility of obtaining hydrogen gas from treatment processes; b) development and test of techniques for the extraction and recovery of nutrients (mainly N and P) from digestate and, in general, optimization

	of the management processes of the digestate; c) pyrolysis of residual biomass aimed at obtaining carbonaceous matrices to be tested for the biogas upgrading and purification processes.
PROVISIONAL TITLE of the RESEARCH PROJECT	"Upcycling of organic matter through combined biochemical (anaerobic digestion) and thermochemical (pyrogasification) processes"
DOCTORAL SCHOLARSHIP	**Ateneo** □ **DM 351** □ **DM 352** ■ **PNRR Agritech**□ **Comunale**□
TRAINING PERIOD OUTSIDE UNIFG (company, other Italian Institution)	Sistemi Energetici SpA, Foggia (Italy) (6 months)
TRAINING PERIOD ABROAD	Technical University of Denmark, Copenhagen, Denmark (6 months)

MANDATORY COURSES	**YEAR OF COURSE**	**CV**	**HOURS/CREDITS**	**PROFESSOR**
Informative systems and data elaboration : descriptive statistics	1st	1, 2	16 HR/2 ECTS	Fabio SANTERAMO
Informative systems and data elaboration : experimental design	1st	1, 2	24 HR/3 ECTS	Giuseppe GATTA
Basics of programming	1st	1, 2	16 HR/2 ECTS	Annalisa MASTROSERIO
Advanced statistic	2nd	1, 2	20 HR/ 2 ECTS	Massimo MONTELEONE
OPTIONAL COURSESat choice at least 2 (4 ECTS)	**YEAR OF COURSE**	**CV**	**HOURS/CREDITS**	**PROFESSOR and INSTITUTION**
Trends in analytical techniques for quality and safety controls in the agro-food sector	2nd	1	16 ore/ 2 CFU	Maurizio Quinto
Green economy :aspetti economici, sociali e ambiantali	2nd	1	20 ore/ 2 CFU	Antonio Stasi
Research methods: aspetti teorici e applicazioni al settore agro-alimentare	1st	1	20 ore/ 2 CFU	Francesco Bimbo

Doctoral Student

Tayyaba Gull

Tutor

Prof. Matteo Francavilla