Curriculum of Alfio Giarlotta (October 2019)

EDUCATION, AWARDS, HABILITATIONS

- 1988: "Laurea" in Economics, University of Catania, Italy.

- 1989: Accreditation as a Certified Tax Consultant.

- 1995: *Fulbright* Fellowship to pursue graduate study in USA.

- 1997: Master in Mathematics, University of Illinois at Urbana-Champaign, USA.

- 2000: Tenured Assistant Professor at the Faculty of Economics, University of Catania, Italy.

- 2004: Ph.D. in Mathematics, University of Illinois at Urbana-Champaign
(under the supervision of C. W. Henson and S. Watson).

- 2016: National Habilitation as Associate Professor (SECS-S/06, 13/D4).

- 2019: National Habilitation as Full Professor (SECS-S/06, 13/D4).

ACADEMIC POSITION

- Aggregate Professor of General Mathematics, Department of Economics and Business, University of Catania, Italy.

CURRENT RESEARCH TOPICS
[collaborations are listed in square brackets]

- Preference Modeling

    - universal representation of semiorders, and consequences [Wat]
    - weak and strict (m, n)-Ferrers properties [Wat]
    - preference representations in vector spaces [Wat]

- Multi-Preference Modeling

    - necessary and possible preferences [Gre, Wat]
    - generalizations of Schmeidler's (1971) theorem [Wat]
    - uniform bi-preferences [Wat]

- Decision Theory

    - bi-preferences under uncertainty/risk [Cer, Gre, Mac, Mar]

– generalization of Savage's theorem [Wat]

- Choice Theory

  – the transitive structure of a rationalization [Can, Gre, Wat]
  – choice resolutions [Can,Wat]
  – multi-rationalization (free, monotonic, transitive, listable) [Can, Wat]
  – congruence relations and revealed indiscernibility [Can, Wat]
  – choices by voters: democratic vs liberal [Alc, Can, Wat]

- Utility Theory

  – lexicographic representations [Wat]
  – Debreu-like properties [Cas, Wat]

- Resolutions of Convex Geometries [Can, Doi, Wat]

- Multi-Criteria Decision Theory: PACMAN and its applications [Ang, Lam]

- Microeconomics: the one-many Pareto ordering [Rei]

- Geometry of Data Structures: centroid and Steiner center [Urs]

- Econophysics: modelization of consumer behavior [Bio, Plu, Rap]

where:

Alc: *Alcantud, José C. R.* Department of Economics and Economic History, University of Salamanca, Spain.

Ang: *Angilella, Silvia.* Department of Economics and Business, University of Catania.

Bio: *Biondo, Alessio.* Department of Economics and Business, University of Catania.

Can: *Cantone, Domenico.* Department of Mathematics and Computer Science, University of Catania.

Cas: *Caserta, Agata.* Department of Mathematics and Physics, University of Naples II

Cer: *Cerreia-Vioglio, Simone.* Department of Decision Sciences, Bocconi University, Milan

Doi: *Doignon, Jean-Paul.* Department of Mathematics, Université Libre de Bruxelles, Belgium.

Gre: *Greco, Salvatore.* Department of Economics and Business, University of Catania.

Lam: *Lamantia, Fabio.* Department of Economics, Statistics and Finance, University of Calabria.

Mac: *Maccheroni, Fabio.* Department of Decision Sciences, Bocconi University, Milan.

Mar: *Marinacci, Massimo.* Department of Decision Sciences, Bocconi University, Milan.

Plu: *Pluchino, Alessandro.* Department of Physics, University of Catania.

Rap: *Rapisarda, Andrea.* Department of Physics, University of Catania.

Rei: *Reito, Francesco.* Department of Economics and Business, University of Catania.

Urs: *Ursino, Pietro.* Department of Mathematics and Computer Science, University of Catania.

Wat: *Watson, Stephen.* Department of Mathematics and Statistics, York University, Toronto, Canada.

STUDENTS (current collaborations)

- Petralia, Angelo Enrico (PhD student in Economics, Carlo Alberto College, Torino).

- Sudano, Ester ("Laurea Magistrale" in Business Finance, University of Catania).

- Carpentiere, Davide (Bachelor in Mathematics, University of Catania).

SELECTED PUBLICATIONS

1. Giarlotta, A. (2001). Multicriteria compensability analysis. *European Journal of Operational Research* 133/1, 190–209.

2. Giarlotta, A. (2005). The representability number of a chain. *Topology and its Applications* 150, 157–177.

3. Caserta, A., Giarlotta, A., and Watson, S. (2008). Debreu-like properties of utility representations. *Journal of Mathematical Economics* 44, 1161–1179.

4. Giarlotta, A., and Watson, S. (2009). Pointwise Debreu lexicographic powers. *Order* 26/4, 377–409.

5. Angilella, S., Giarlotta, A., and Lamantia, F. (2010). A linear implementation of PACMAN. *European Journal of Operational Research* 205, 401–411.

6. Giarlotta, A., and Greco, S. (2013). Necessary and possible preference structures. *Journal of Mathematical Economics* 42/1, 163–172.

7. Giarlotta, A., and Watson, S. (2013). A hierarchy of chains embeddable into the lexicographic power $\mathbb{R}^{\omega}_{\text{lex}}$. *Order* 30, 463–485.

8. Giarlotta, A. (2014). A genesis of interval orders and semiorders: Transitive NaP-preferences. *Order* 31, 239–258.

9. Giarlotta, A., and Watson, S. (2014). The pseudo-transitivity of preference relations: Strict and weak (m,n)-Ferrers properties. *Journal of Mathematical Psychology* 58, 45–54.

10. Giarlotta, A., and Watson, S. (2014). Lexicographic preferences representable by real-branching trees with countable height: A dichotomy result. *Indagationes Mathematicae* 25, 78–92.

11. Giarlotta, A. (2015). Normalized and strict NaP-preferences. *Journal of Mathematical Psychology* 66, 34–40.

12. Biondo, A. Giarlotta, A. Pluchino, A., and Rapisarda, A. (2016). Perfect information vs random investigation: Safety guidelines for a consumer in the jungle of product differentiation. *PLOS ONE* 11, 1–26.

13. Giarlotta, A., and Ursino, P. (2016). Some remarks on an efficient algorithm to find a centroid in a k-dimensional real space. *Applied Mathematical Sciences* 10, 1619–1641.

14. Cantone, D. Giarlotta, A., Greco, S., and Watson, S. (2016). (m, n)-rationalizable choices. *Journal of Mathematical Psychology* 73, 12–27.

15. Giarlotta, A., and Watson, S. (2016). Universal semiorders. *Journal of Mathematical Psychology* 73, 80–93.

16. Giarlotta, A., and Watson, S. (2017). Well-graded families of NaP-preferences. *Journal of Mathematical Psychology* 77, 21–28.

17. Giarlotta, A., and Watson, S. (2017). Necessary and possible indifferences. *Journal of Mathematical Psychology* 81, 98–109.

18. Giarlotta, A., and Watson, S. (2018). Strict $(m, 1)$-Ferrers properties. *Journal of Mathematical Psychology* 82, 84–96.

19. Cerreia-Vioglio, S., Giarlotta, A., Greco, S., Maccheroni, F., and Marinacci M. (2018). Rational preference and rationalizable choice. *Economic Theory*, https://doi.org/10.1007/s00199-018-1157-1.

20. Alcantud, J. C. R., Biondo, A. E., and Giarlotta, A. (2019). Fuzzy politics I: the genesis of parties. *Fuzzy Sets and Systems* 349, 71–98.

21. Alcantud, J. C. R., and Giarlotta, A. (2019). Necessary and possible hesitant fuzzy sets: A novel model for group decision making. *Information Fusion* 46, 63–76.

22. Cantone, D., Giarlotta, A., and Watson, S. (2019). Congruence relations on a choice space. *Social Choice and Welfare* 52, 247–294.