

# Master Degree in Mathematics

[www.univr.it/mathematics](http://www.univr.it/mathematics)

a.a. 2021/22



UNIVERSITÀ  
di **VERONA**

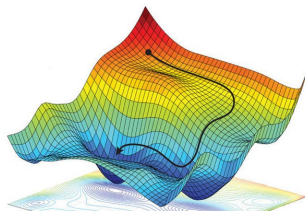
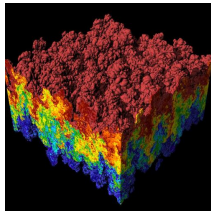
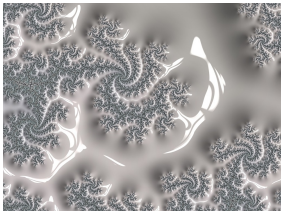
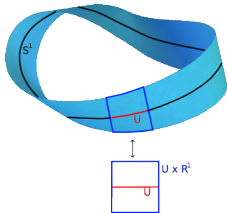
Dipartimento  
di **INFORMATICA**



## Why mathematics? STEM++

Professional environments requiring strong mathematics skills:

- Physics at all scales and engineering sciences. Material science (Dinamica dei fluidi).
- Finance, insurance (Micro-Macro Ec., Econom., Mat. Fin.)
- Biology, medicine, health (Met. Mat e Stat. Biol.).
- Computer science in general, and HPC (High Performance Computing) and big data in particular example.
- Social sciences, in the broadest sense. Development of complex systems or modelling, data analysis, artificial intelligence.



## ECMI Activities, Verona - Teaching center

[ecmiindmath.org/](http://ecmiindmath.org/)

- Mathematical modelling, simulation, and optimization in socio-economic and industrial activities.



Phd Modelling week 2016

MODELLING WEEK JUNE 2022

**ECMI** EUROPEAN CONSORTIUM FOR  
MATHEMATICS IN INDUSTRY

A panoramic photograph of Verona, Italy, showing the city's historic architecture and the Adige river at sunset. The warm orange and yellow light of the setting sun reflects on the water and illuminates the buildings.

A row of logos for the partner organizations involved in the Modelling Week, including COST, SM[i], MI-NET, SMAI, CONFINDUSTRIA, and the University of Verona.

Upcoming for master

## Why in English?

- The official language of science is **English**
- More opportunities for **studying/research/job** both in Italy and abroad (a lot of **webinars** online, such as VTMS, nowadays)
- CLIL: English as mandatory teaching language in high school classes (C1 level required)
- Highly qualified international teaching staff (**minicourses**).



### MATHEMATICS mini-courses 2019/20

**Nicola Baccarelli** Windows University of Science and Technology  
Anomalous diffusion and applications  
to molecular biology  
November 2019 on line  
[grandomerica.ateneo@univr.it](#)

**Anna M. J. Gomes** University of Strathclyde  
Mathematical modelling of liquid crystals  
and industrial applications  
December 2019 on line  
[grandomerica.ateneo@univr.it](#)

**Andrea Baccarelli** University of Strathclyde  
Overdetermined boundary value problems  
and torsion  
January 2020 on line  
[grandomerica.ateneo@univr.it](#)

**Roberto C. MacCamy** University of St. Andrews  
Essentials of reaction-diffusion equations  
in Mathematical Biology  
January 2020 on line  
[grandomerica.ateneo@univr.it](#)

**Maria Mayhew FRIMA** University of South Florida  
Combinatorial Strategies for Modern Biology  
April 2020 on line  
[grandomerica.ateneo@univr.it](#)

**Andrea Cappelletti** London School of Economics  
An introduction to stochastic control  
and portfolio optimization  
April 2020 on line  
[grandomerica.ateneo@univr.it](#)

**Marina Poljakovic** University of Western Ontario  
Monte Carlo Methods for Mathematical Finance  
with Applications  
May 2020 on line  
[grandomerica.ateneo@univr.it](#)

**Roberto C. MacCamy** University of St. Andrews  
Numerical Methods for Finance in Energy  
May 2020 on line  
[grandomerica.ateneo@univr.it](#)

**Roberto C. MacCamy** University of St. Andrews  
Numerical methods for pricing financial  
options  
May 2020 on line  
[grandomerica.ateneo@univr.it](#)



### MATHEMATICS mini-courses 2020/21

**Angelo Del Bello** University of Strathclyde  
Algebraic Geometry codes  
October 2020 on line  
[grandomerica.ateneo@univr.it](#)

**Roberto C. MacCamy** University of St. Andrews  
An introduction to the geometry  
of integrable Hamiltonian systems  
October 2020 on line  
[grandomerica.ateneo@univr.it](#)

**Roberto C. MacCamy** University of St. Andrews  
Modeling epidemics: an introduction  
to the use of compartmental models  
for the simulation of epidemics in time  
and space  
November 2020 on line  
[grandomerica.ateneo@univr.it](#)

**Fabrizio Baccarelli** Windows University of Science and Technology  
Stochastic growth models  
March 2021 on line  
[grandomerica.ateneo@univr.it](#)

**Roberto C. MacCamy** University of St. Andrews  
Backward Stochastic Differential Equations  
with applications  
April 2021 on line  
[grandomerica.ateneo@univr.it](#)

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Combinatorial Strategies for Modern Biology  
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## Leaders in internationalization

### Department of Computer Science (Verona)

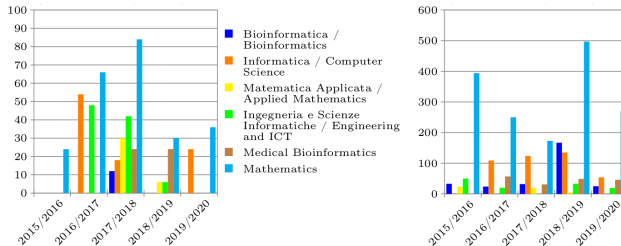


Figure: ECTS Erasmus+ Incoming (left) and Outgoing (right)

Mathematics	year	VR	NorthEast	Italy
Percentage of graduates with at least 12 ECTS abroad	2018	29.41	24.19	18.96
	2017	45.45	23.83	15.61
Percentage of students who obtained the Bachelor abroad	2018	29.03	5.69	4.50
	2017	23.53	5.73	5.02

## Internships (also virtual and/or abroad with Erasmus+)

- Luis Q. 2021, Inst. Modelling and Simulation in fluidodynamics, UC3M Madrid
- Elisa P., 2020, Erasmus and internship, ESA - Darmstadt, (Germany)
- Felicia O. 2020, Erasmus+Internship, Univ. Grenoble Alpes
- Rina I. 2020, Erasmus+Internship, Grenoble INP
- Erik P. 2019 Erasmus+Internship, Grenoble INP
- Valeria C. 2019, INRIA Paris (math modelling in biomedicine)
- Silvia P. 2018 IDIBAPS Barcelona (computational neurosciences)
- Damiano, 2019, PUC Rio, (Brazil)
- Matteo F. & Alessandro M. 2018 Osp. B.go Trento, Verona (biomedical imaging)
- Valentina M. 2018 Erasmus+Internship U. Nice Côte d'Azur (comput. neurosciences).
- Giada F. 2018 Internship LJLL Univ. Paris Sorbonne (math modelling in biomedicine)
- Matteo F. & Alessandro M. 2017 EPFL Lausanne (biomedical imaging)
- Elisa C., 2017, internship, RTWH Aachen (Germany)
- Chiara S., 2016, Google Summer of Code
- Cristiano M., 2016, European Space Agency SOCIS
- Chiara R., 2014, Camera di Commercio, Verona
- Andrea A., 2014, Fairmat (software house and financial mathematics)
- Isacco R., 2014, Aleph Energy (models for energy markets)
- Alessandro S., 2014, Cattolica Insurance
- Cristina P., 2013/14, Erasmus and internship, University of Innsbruck (Austria)
- Sara C., 2011, French Institute of Petroleum, Paris (France)
- Gregorio Z., 2014, Enginsoft (Computer Aided Engineering), Padova
- Elisa D., 2012, Zamperla (roller coasters design), Vicenza
- Martina N., 2013, Atraki (traffic flow modeling), Verona

## Job opportunities: (employment rate '19: 100% after 1 y.)

- Middle and High school teachers (Matematica e scienze, Matematica, Matematica e fisica, Fisica), highly needed in Veneto region (but not only)

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- **PhD** and research in Mathematics, Computer science, Biomedicine, Neuroscience, Signal Processing, ...



AlumniMATH

## Curricula

### Common **foundational** courses

- Differential geometry
- Functional analysis
- Analytical mechanics
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  - Mathematics teaching and workshop
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  - Mathematics teaching and workshop
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- **Curriculum Applied Mathematics - core courses**
  - Stochastic calculus
  - Optimization
  - Partial Differential Equations



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- I. mini courses delivered by international faculties
- II. courses from **other masters** (Data Science, Robotics)
- III. courses in agreement with University of Trento (joint PhD)
- IV. courses within Erasmus+ mobility program

## Further activities

- 1 semester (or 2) of mobility experience abroad (Erasmus+ & UniVR Worldwide programs — **more than 25 programs**)  
Presentation of agreements to students: **December/January**  
Deadline for first semester abroad: **June/July**  
Deadline for second semester abroad: **October/November**

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- Final project (also **abroad** within Erasmus+ program)

## Opportunities to enhance your master degree

- **ECMI certificate**: Modelling week, +6 months abroad, modelling seminar.
- **Joint Degree** with Grenoble Institute of Technology (France) (30 ECTS + final project): **Master of Science in Industrial and Applied Math; Financial Engineering; Math Modelling in Sciences.**



- More Joint degrees are coming...

## Information

- **Web page**  
Official
- **Announcements and infos**  
<https://www.di.univr.it/?ent=avviso>  
<https://www.univr.it/en/coronavirus-info-studenti>
- **Email**  
master.math@ateneo.univr.it  
francesca.mantese@univr.it (Referente magistrale in Mathematics)  
giacomo.albi@univr.it
- **Telegram Channel Veronesi Tutti Math**  
@veronesituttimath
- **Associazione Alumni Matematica Verona**  
[http://www.almathverona.it/index\\_it.html](http://www.almathverona.it/index_it.html)