

**Tabella Insegnamenti AA. 2022/2023**  
**Corso di laurea Magistrale in Fisica**

<b>Corso di laurea in Fisica (LM-17) - Curriculum Biosistemi</b>							
<b>N.</b>	<b>Insegnamenti</b>	<b>CFU</b>	<b>anno</b>	<b>sem.</b>	<b>SSD</b>	<b>eng</b>	<b>ambito</b>
1	Condensed Matter Physics	6	1	1	FIS/03	Y	caratt.
2	Soft and Biological Matter	6	1	1	FIS/03	Y	caratt.
3	Physics Laboratory I (propedeutico a Physics Laboratory II)	6	1	1	FIS/01	Y	caratt.
4	Physics Laboratory II	9	1	2	FIS/01	Y	caratt.
5	Theoretical Biophysics	6	1	2	FIS/02	Y	caratt.
6	Biophysics	6	1	2	FIS/03		caratt.
7	English language	4	1	2		Y	AAF
8	Facoltativo (da Gruppo A)	6	1 / 2	1 / 2			aff.-int.
9	Facoltativo (da Gruppo A)	6	1 / 2	1 / 2			aff.-int.
10	Corso a scelta libera	6	1/2	1/2			
11	Introduction to Quantum Field Theory	6	2	1	FIS/02	Y	caratt.
12	Facoltativo (da Gruppo A)	6	1 / 2	1 / 2			aff.-int.
13	Corso a scelta libera	6	1/2	1/2			
14	Internship	3	2	1		Y	AAF
15	Thesis Project	38	2	2		Y	AAF
<b>Gruppo A (aff.-int.)</b>							
1	Biochimica	6	1	1	BIO/10	N	
2	Computational Biophysics	6	1	1	INF/01	Y	
3	Computing Methods for Physics	6	1	1	INF/01	Y	
4	Statistical Mechanics and Critical Phenomena	6	1	1	FIS/02	Y	
5	Nonlinear and Quantum Optics	6	1	1	FIS/03	Y	
6	Molecular biology	6	1	2	BIO/11	Y	
7	Mathematical Physics	6	1	2	MAT/07	Y	
8	Nonlinear Waves and Solitons	6	1	2	FIS/02	Y	
9	Neural Networks	6	1	2	FIS/02	Y	
10	Meccanica statistica del non equilibrio	6	1	2	FIS/02	N	
11	Photonics	6	1	2	FIS/03	Y	
12	Physics of Liquids	6	1	2	FIS/03	Y	
13	Spectroscopy Methods and Nanophotonics	6	1	2	FIS/03	Y	
14	Advanced Machine Learning for Physics	6	1	2	INF/01	Y	
15	Statistical Physics and Machine Learning	6	2	1	FIS/02	Y	
16	Many-Body Physics	6	2	1	FIS/03	Y	
17	Medical Applications of Physics	6	2	1	FIS/01	Y	
18	Physics of Complex Systems	6	2	1	FIS/03	Y	

19	Statistical Mechanics of Disordered Systems	6	2	1	FIS/02	Y	
20	Surface physics and nanostructures	6	2	1	FIS/03	Y	
21	Theory of Stochastic Processes	6	2	1	FIS/02	Y	

## Manifesto AA. 2022/2023 Corso di laurea Magistrale in Fisica

Corso di laurea in Fisica (LM-17) - Curriculum Condensed matter physics: Theory and experiment							
N.	Insegnamenti	CFU	anno	sem.	SSD	eng	ambito
1	Introduction to Quantum Field Theory	6	1	1	FIS/02	Y	caratt.
2	Condensed Matter Physics	6	1	1	FIS/03	Y	caratt.
3	Physics Laboratory I (propedeutic teaching to Physics Laboratory II)	6	1	1	FIS/01	Y	caratt.
4	Computing Methods for Physics	6	1	1	INF/01	Y	aff.-int.
5	Physics Laboratory II	9	1	2	FIS/01	Y	caratt.
6	Condensed Matter Physics II	6	1	2	FIS/03	Y	caratt.
7	English Language	4	1	2		Y	AAF
8	Elective (within group A)	6	1 / 2	1 / 2		Y	aff.-int.
9	Elective (within group B)	6	1 / 2	1 / 2	FIS/03	Y	caratt.
10	Elective (within group B)	6	1 / 2	1 / 2	FIS/03	Y	caratt.
11	Elective (within group C)	6	1 / 2	1 / 2		Y	aff.-int.
12	Elective (free choice)	6	1/2	1/2			
13	Elective (free choice)	6	1/2	1/2			
14	Internship	3	2	1		Y	AAF
15	Thesis Project	38	2	2		Y	AAF
<b>Gruppo A (aff.- int.)</b>							
1	Statistical Mechanics and Critical Phenomena	6	1	1	FIS/02	Y	
2	Physics of liquids	6	1	2	FIS/03	Y	
3	Physics of solids	6	2	1	FIS/03	Y	
<b>Gruppo B (caratt.)</b>							
1	Soft and Biological Matter	6	1	1	FIS/03	Y	
2	Nonlinear and Quantum Optics	6	1	1	FIS/03	Y	
3	Photonics	6	1	2	FIS/03	Y	
4	Physics of liquids	6	1	2	FIS/03	Y	
5	Spectroscopy Methods and Nanophotonics	6	1	2	FIS/03	Y	
6	Superconductivity and Superfluidity	6	2	1	FIS/03	Y	
7	Many Body Physics	6	2	1	FIS/03	Y	
8	Physics of solids	6	2	1	FIS/03	Y	
9	Physics of Complex Systems	6	2	1	FIS/03	Y	
10	Surface Physics and Nanostructures	6	2	1	FIS/03	Y	
<b>Gruppo C (aff.-int..)</b>							
1	Computational Biophysics	6	1	1	INF/01	Y	
2	Nonlinear and Quantum Optics	6	1	1	FIS/03	Y	
3	Soft and Biological Matter	6	1	1	FIS/03	Y	

4	Statistical Mechanics and Critical Phenomena	6	1	1	FIS/02	Y	
5	Biophysics	6	1	2	FIS/03	Y	
6	Computer architecture for Physics	6	1	2	INF/01	Y	
7	Advanced Machine Learning for Physics	6	1	2	INF/01	Y	
8	Mathematical Physics	6	1	2	MAT/07	Y	
9	Neural Networks	6	1	2	FIS/02	Y	
10	Nonlinear waves and solitons	6	1	2	FIS/02	Y	
11	Photonics	6	1	2	FIS/03	Y	
12	Physics of liquids	6	1	2	FIS/03	Y	
13	Spectroscopy Methods and Nanophotonics	6	1	2	FIS/03	Y	
14	Theoretical Biophysics	6	1	2	FIS/02	Y	
15	Molecular Biology	6	1	2	BIO/11	Y	
16	Superconductivity and Superfluidity	6	2	1	FIS/03	Y	
17	Quantum Field Theory	6	2	1	FIS/02	Y	
18	Physics of Solids	6	2	1	FIS/03	Y	
19	Medical Applications of Physics	6	2	1	FIS/01	Y	
20	Many-Body Physics	6	2	1	FIS/03	Y	
21	Physics of Complex Systems	6	2	1	FIS/03	Y	
22	Quantum Information and Computation	6	2	1	FIS/01	Y	
23	Solid State Sensors	6	2	1	FIS/01	Y	
24	Statistical Mechanics of Disordered Systems	6	2	1	FIS/02	Y	
25	Surface Physics and Nanostructures	6	2	1	FIS/03	Y	
26	Statistical Physics and Machine Learning	6	2	1	FIS/02	Y	
27	Theory of Stochastic Processes	6	2	1	FIS/02	Y	

## Manifesto AA. 2022/2023 Corso di laurea Magistrale in Fisica

Corso di laurea in Fisica (LM-17) - Curriculum Fundamental Interactions : Theory and Experiment							
N.	Insegnamenti	CFU	anno	sem.	SSD	eng	ambito
1	Introduction to Quantum Field Theory	6	1	1	FIS/02	Y	caratt.
2	Condensed Matter Physics	6	1	1	FIS/03	Y	caratt.
3	Physics Laboratory I (propedeutic teaching to Physics Laboratory II)	6	1	1	FIS/01	Y	caratt.
4	Group Theory in Mathematical Physics	6	1	1	MAT/07	Y	aff.-int.
5	Theory of Fundamental Interactions	6	1	2	FIS/02	Y	caratt.
6	Particle Physics	6	1	2	FIS/04	Y	caratt.
7	Physics Laboratory II	9	1	2	FIS/01	Y	caratt.
8	English language	4	1	2		Y	AAF
9	Elective (within group A)	6	1/2	1/2	FIS/01	Y	caratt.
10	Elective (within group B)	6	1/2	1/2	FIS/02-05	Y	aff.-int.
11	Elective (within group C)	6	1/2	1/2		Y	aff.-int.
12	Elective (free choice)	6	1/2	1/2		Y	
13	Elective (free choice)	6	1/2	1/2		Y	
14	Internship	3	2	1		Y	AAF
15	Thesis Project	38	2	2		Y	AAF
<b>Gruppo A (caratt.)</b>							
1	Detectors and Accelerators in Particle Physics	6	1	2	FIS/01	Y	
2	Methods in Experimental Particle Physics	6	1	2	FIS/01	Y	
3	Collider Particle Physics	6	2	1	FIS/01	Y	
4	Neutrinos and Dark Matter	6	2	1	FIS/01	Y	
5	Experimental Gravitation (mutuato da LM-58)	6	2	1	FIS/01	Y	
6	Medical Applications of Physics	6	2	1	FIS/01	Y	
7	Astroparticle Physics (mutuato da LM-58)	6	2	1	FIS/01	Y	
8	Solid State Sensors	6	2	1	FIS/01	Y	
<b>Gruppo B (aff.-int.)</b>							
1	General Relativity (mutuato da LM-58)	6	1	1	FIS/02	Y	
2	Neural Networks (reserved for LaScala students only)	6	1	2	FIS/02	Y	
3	Gravitational Waves, Compact Stars and Black Holes	6	1	2	FIS/02	Y	
4	Physical Cosmology (mutuato da LM-58)	6	1	2	FIS/05	Y	
5	Strong Interactions and QCD	6	1	2	FIS/02	Y	
6	Quantum Field Theory	6	2	1	FIS/02	Y	

7	Phenomenology of the Standard Model	6	2	1	FIS/02	Y	
<b>Gruppo C (aff.-int.)</b>							
1	Computing Methods for Physics	6	1	1	INF/01	Y	
2	General Relativity (mutuato da LM-58)	6	1	1	FIS/02	Y	
3	Neural Networks	6	1	2	FIS/02	Y	
4	Advanced Machine Learning for Physics	6	1	2	INF/01	Y	
5	Computer Architecture for Physics	6	1	2	INF/01	Y	
6	Detectors and Accelerators in Particle Physics	6	1	2	FIS/01	Y	
7	Mathematical Physics	6	1	2	MAT/07	Y	
8	Methods in Experimental Particle Physics	6	1	2	FIS/01	Y	
9	Nuclear Physics	6	1	2	FIS/04	Y	
10	Gravitational Waves, Compact Stars and Black Holes	6	1	2	FIS/02	Y	
11	Physical Cosmology (mutuato da LM-58)	6	1	2	FIS/05	Y	
12	Plasma Physics and Nuclear Fusion (mutuato da LM-30)	6	1	2	FIS/01	Y	
13	Strong interactions and QCD	6	1	2	FIS/02	Y	
14	Accelerator Physics and Relativistic Electrodynamics (mutuato da LM-29)	6	1	2	FIS/01	Y	
15	Astroparticle Physics (mutuato da LM-58)	6	2	1	FIS/01	Y	
16	Collider Particle Physics	6	2	1	FIS/01	Y	
17	Experimental Gravitation (mutuato da LM-58)	6	2	1	FIS/01	Y	
18	Medical Applications of Physics	6	2	1	FIS/01	Y	
19	Neutrinos and Dark Matter	6	2	1	FIS/01	Y	
20	Quantum Field Theory	6	2	1	FIS/02	Y	
21	Solid State Sensors	6	2	1	FIS/01	Y	
22	Phenomenology of the Standard Model	6	2	1	FIS/02	Y	
23	Laser Fundamentals (mutuato da LM-29, reserved for Lascala students only)	6	1	2	FIS/01	Y	
24	Optics (mutuato da LM-29, reserved for Lascala students only)	6	1	2	FIS/01	Y	

## Manifesto AA. 2022/2023 Corso di laurea Magistrale in Fisica

### Corso di laurea in Fisica (LM-17) - Curriculum Teorico Generale

N.	Insegnamenti	CFU	anno	sem.	SSD	eng	ambito
1	Introduction to Quantum Field Theory	6	1	1	FIS/02	Y	caratt.
2	Condensed Matter Physics	6	1	1	FIS/03	Y	caratt.
3	Physics Laboratory I (propedeutico a Physics Laboratory II)	6	1	1	FIS/01	Y	caratt.
4	Physics Laboratory II	9	1	2	FIS/01	Y	caratt.
5	Facoltativo (da Gruppo C)	6	1	1/2	MAT/07	Y	aff.-int.
6	English language	4	1	2		Y	AAF
7	Facoltativo (da Gruppo A)	6	1/2	1/2			caratt.
8	Facoltativo (da Gruppo A)	6	1/2	1/2			caratt.
9	Facoltativo (da Gruppo B)	6	1/2	1/2			aff.-int.
10	Corso a scelta libera	6	1/2	1/2			
11	Facoltativo (da Gruppo A)	6	1/2	1/2			caratt.
12	Facoltativo (da Gruppo B)	6	1/2	1/2			aff.-int.
13	Corso a scelta libera	6	2	1			
14	Internship	3	2	1		Y	AAF
15	Thesis Project	38	2	2		Y	AAF
<b>Gruppo A (caratt.)</b>							
1	Statistical Mechanics and Critical Phenomena	6	1	1	FIS/02	Y	
2	General Relativity (mutuato da LM-58)	6	1	1	FIS/02	Y	
3	Theory of Fundamental Interactions	6	1	2	FIS/02	Y	
4	Meccanica Statistica del Non Equilibrio	6	1	2	FIS/02	N	
5	Nonlinear Waves and Solitons	6	1	2	FIS/02	Y	
6	Statistical Mechanics of Disordered Systems	6	2	1	FIS/02	Y	
7	Quantum Field Theory	6	2	1	FIS/02	Y	
8	Statistical Physics and Machine Learning	6	2	1	FIS/02	Y	
<b>Gruppo B (aff.-int.)</b>							
1	Computing Methods for Physics	6	1	1	INF/01	Y	
2	Statistical Mechanics and Critical Phenomena	6	1	1	FIS/02	Y	
3	General Relativity (mutuato da LM-58)	6	1	1	FIS/02	Y	
4	Nonlinear and Quantum Optics	6	1	1	FIS/03	Y	
5	Theory of Fundamental Interactions	6	1	2	FIS/02	Y	
6	Theoretical Biophysics	6	1	2	FIS/02	Y	
7	Meccanica Statistica del Non Equilibrio	6	1	2	FIS/02	N	
8	Gravitational Waves, Compact Stars and Black Holes	6	1	2	FIS/02	Y	
9	Neural Networks	6	1	2	FIS/02	Y	
10	Strong interactions and QCD	6	1	2	FIS/02	Y	
11	Condensed Matter Physics II	6	1	2	FIS/03	Y	

12	Advanced Machine Learning for Physics	6	1	2	INF/01	Y	
13	Physical Cosmology	6	1	2	FIS/05	Y	
14	Superconductivity and Superfluidity	6	2	1	FIS/03	Y	
15	Many-Body Physics	6	2	1	FIS/03	Y	
16	Physics of Complex Systems	6	2	1	FIS/03	Y	
17	Quantum information and Computation	6	2	1	FIS/01	Y	
18	Phenomenology of the Standard Model	6	2	1	FIS/02	Y	
19	Theory of Stochastic Processes	6	2	1	FIS/02	Y	
20	Statistical Mechanics of Disordered Systems	6	2	1	FIS/02	Y	
21	Physics of Solids	6	2	1	FIS/03	Y	
<b>Gruppo C (aff.-int.)</b>							
1	Group Theory in Mathematical Physics	6	1	1	MAT/07	Y	
2	Mathematical Physics	6	1	2	MAT/07	Y	