

# LAUREA MAGISTRALE IN FISICA AA. 2020/21

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

N.	Insegnamenti	CFU	anno	sem.	SSD	eng	ambito
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	Gruppo A	6	1 / 2	1 / 2			aff.-int.
9	Gruppo A	6	1 / 2	1 / 2			aff.-int.
10	Corso a scelta	6	1/2	1/2			
11	Relativistic Quantum Mechanics	6	2	1	FIS/02	Y	caratt.
12	Gruppo A	6	1 / 2	1 / 2			aff.-int.
13	Corso a scelta	6	1/2	1/2			
14	Internship	3	2	1		Y	AAF
15	Thesis Project	38	2	2		Y	AAF

### Gruppo A (aff.-int.)

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	Computational Statistical Mechanics	6	1	2	FIS/02	Y	
9	Nonlinear Waves and Solitons	6	1	2	FIS/02	Y	
10	Neural Networks	6	1	2	FIS/02	Y	
11	Meccanica statistica del non equilibrio	6	1	2	FIS/02	N	
12	Photonics	6	1	2	FIS/03	Y	
13	Physics of Liquids	6	1	2	FIS/03	Y	
14	Spectroscopy Methods and Nanophotonics	6	1	2	FIS/03	Y	
15	Many-Body Physics	6	2	1	FIS/02	Y	
16	Medical Applications of Physics	6	2	1	FIS/01	Y	
17	Physics of Complex Systems	6	2	1	FIS/03	Y	
18	Statistical Mechanics of Disordered Systems	6	2	1	FIS/03	Y	
19	Surface physics and nanostructures	6	2	1	FIS/03	Y	

# LAUREA MAGISTRALE IN FISICA AA. 2020/21

Corso di laurea in Fisica (LM-17) - Curriculum Condensed matter physics: Theory and experiment							
N.	Insegnamenti	CFU	anno	sem.	SSD	eng	ambito
1	Relativistic Quantum Mechanics	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	Condensed Matter Physics II	6	1	2	FIS/03	Y	caratt.
6	Computing Methods for Physics	6	1	1	INF/01	Y	aff.-int.
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

Gruppo A (aff.- int.)							
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	

Gruppo B (caratt.)							
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	1	2	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	

# LAUREA MAGISTRALE IN FISICA AA. 2020/21

<b>Gruppo C (aff.-int..)</b>							
1	Computational Biophysics	6	1	1	INF/01	Y	
2	Machine learning (mutuato dal CdS magistrale Computer Science/Informatica)	6	1	1	INF/01	Y	
3	Nonlinear and Quantum Optics	6	1	1	FIS/03	Y	
4	Soft and Biological Matter	6	1	1	FIS/03	Y	
5	Statistical Mechanics and Critical Phenomena	6	1	1	FIS/02	Y	
6	Biophysics	6	1	2	FIS/03	Y	
7	Computational Statistical Mechanics	6	1	2	FIS/02	Y	
8	Computer architecture for Physics	6	1	2	INF/01	Y	
9	Deep Learning and applied artificial intelligence (CdS magistrale Computer Science/Informatica)	6	1	2	INF/01	Y	
10	Mathematical Physics	6	1	2	MAT/07	Y	
11	Neural Networks	6	1	2	FIS/02	Y	
12	Nonlinear waves and solitons	6	1	2	FIS/02	Y	
13	Photonics	6	1	2	FIS/03	Y	
14	Physics of liquids	6	1	2	FIS/03	Y	
15	Spectroscopy Methods and Nanophotonics	6	1	2	FIS/03	Y	
16	Superconductivity and Superfluidity	6	1	2	FIS/03	Y	
17	Theoretical Biophysics	6	1	2	FIS/02	Y	
18	Molecular Biology	6	1	2	BIO/11	Y	
19	Quantum Field Theory	6	2	1	FIS/02	Y	
20	Physics of Solids	6	2	1	FIS/03	Y	
21	Medical Applications of Physics	6	2	1	FIS/01	Y	
22	Many-Body Physics	6	2	1	FIS/03	Y	
23	Physics of Complex Systems	6	2	1	FIS/03	Y	
24	Quantum Information and Computation	6	2	1	FIS/01	Y	
25	Solid State Sensors	6	2	1	FIS/01	Y	
26	Statistical Mechanics of Disordered Systems	6	2	1	FIS/02	Y	
27	Surface Physics and Nanostructures	6	2	1	FIS/03	Y	

# LAUREA MAGISTRALE IN FISICA AA. 2020/21

## Corso di laurea in Fisica (LM-17) - Curriculum Particle and Astroparticle Physics

N.	Insegnamenti	CFU	anno	sem.	SSD	eng	ambito
1	Relativistic Quantum Mechanics	6	1	1	FIS/02	Y	caratt.
2	Electroweak interactions	6	1	1	FIS/02	Y	caratt.
3	Condensed Matter Physics	6	1	1	FIS/03	Y	caratt.
4	Elective (within group B)	6	1 / 2	1 / 2	(vedi)	Y	aff.-int.
5	Physics Laboratory I (propedeutic teaching to Physics Laboratory II)	6	1	1	FIS/01	Y	caratt.
6	Particle Physics	6	1	2	FIS/04	Y	caratt.
7	Mathematical Physics	6	1	2	MAT/07	Y	aff.-int.
8	Elective (within group A)	6	1 / 2	1 / 2	FIS/01	Y	caratt.
9	Elective (free choice)	6	1/2	1/2		Y	
10	Physics Laboratory II	9	1	2	FIS/01	Y	caratt.
11	English language	4	1	2		Y	AAF
12	Elective (within group B)	6	1 / 2	1 / 2		Y	aff.-int.
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	Current Topics in Particle Physics	6	2	1	FIS/01	Y	
5	Experimental Gravitation	6	2	1	FIS/01	Y	
6	Medical Applications of Physics	6	2	1	FIS/01	Y	
7	Particle and astroparticle Physics	6	2	1	FIS/01	Y	
8	Solid State Sensors	6	2	1	FIS/01	Y	
<b>Gruppo B (aff.-int.)</b>							
1	Computing Methods for Physics	6	1	1	INF/01	Y	
2	Computer Architecture for Physics	6	1	2	INF/01	Y	
3	Detectors and Accelerators in Particle Physics	6	1	2	FIS/01	Y	
4	Methods in Experimental Particle Physics	6	1	2	FIS/01	Y	
5	Nuclear Physics	6	1	2	FIS/04	Y	
6	Quantum Electrodynamics	6	1	2	FIS/02	Y	
7	Collider Particle Physics	6	2	1	FIS/01	Y	
8	Current Topics in Particle Physics	6	2	1	FIS/01	Y	
9	Experimental Gravitation	6	2	1	FIS/01	Y	
10	Medical Applications of Physics	6	2	1	FIS/01	Y	
11	Particle and astroparticle Physics	6	2	1	FIS/01	Y	
12	Quantum Field Theory	6	2	1	FIS/02	Y	
13	Solid State Sensors	6	2	1	FIS/01	Y	
14	Weak Interactions in the Standard Model and beyond	6	2	1	FIS/02	Y	

# LAUREA MAGISTRALE IN FISICA AA. 2020/21

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

N.	Insegnamenti	CFU	anno	sem.	SSD	eng	ambito
1	Relativistic Quantum Mechanics	6	1	1	FIS/02	Y	caratt.
2	Condensed Matter Physics	6	1	1	FIS/03	Y	caratt.
3	Physics Laboratory I (insegnamento propedeutico a Physics Laboratory II)	6	1	1	FIS/01	Y	caratt.
4	Physics Laboratory II	9	1	2	FIS/01	Y	caratt.
5	Mathematical Physics	6	1	2	MAT/07	Y	aff.-int.
6	English language	4	1	2		Y	AAF
7	gruppo A	6	1/2	1/2			caratt.
8	gruppo A	6	1/2	1/2			caratt.
9	gruppo B	6	1/2	1/2			aff.-int.
10	Corso a scelta	6	1/2	1/2			
11	gruppo A	6	1/2	1/2			caratt.
12	gruppo B	6	1/2	1/2			aff.-int.
13	Corso a scelta	6	2	1			
14	Internship	3	2	1		Y	AAF
15	Thesis Project	38	2	2		Y	AAF

### Gruppo A (caratt.)

1	Electroweak interactions	6	1	1	FIS/02	Y	
2	Statistical Mechanics and Critical Phenomena	6	1	1	FIS/02	Y	
3	Relatività generale (mutuato dal CdS di Astronomia e Astrofisica)	6	1	1	FIS/02	N	
4	Quantum electrodynamics	6	1	2	FIS/02	Y	
5	Computational Statistical Mechanics	6	1	2	FIS/02	Y	
6	Meccanica Statistica del Non Equilibrio	6	1	2	FIS/02	N	
7	Nonlinear Waves and Solitons	6	1	2	FIS/02	Y	
8	Statistical Mechanics of Disordered Systems	6	2	1	FIS/02	Y	
9	Quantum Field Theory	6	2	1	FIS/02	Y	

# LAUREA MAGISTRALE IN FISICA AA. 2020/21

Gruppo B (aff.-int.)							
1	Computing Methods for Physics	6	1	1	INF/01	Y	
2	Statistical Mechanics and Critical Phenomena	6	1	1	FIS/02	Y	
3	Relatività generale	6	1	1	FIS/02	N	
4	Electroweak interactions	6	1	1	FIS/02	Y	
5	Nonlinear and Quantum Optics	6	1	1	FIS/03	Y	
6	Theoretical Biophysics	6	1	2	FIS/02	Y	
7	Quantum electrodynamics	6	1	2	FIS/02	Y	
8	Meccanica Statistica del Non Equilibrio	6	1	2	FIS/02	N	
9	Onde gravitazionali, stelle e buchi neri	6	1	2	FIS/02	N	
10	Neural Networks	6	1	2	FIS/02	Y	
11	Simmetrie ed interazioni fondamentali	6	1	2	FIS/02	N	
12	Condensed Matter Physics II	6	1	2	FIS/03	Y	
13	Superconductivity and Superfluidity	6	1	2	FIS/03	Y	
14	Many-Body Physics	6	2	1	FIS/03	Y	
15	Physics of Complex Systems	6	2	1	FIS/03	Y	
16	Introduction to Particle Physics	6	2	1	FIS/01	Y	
17	Quantum information and Computation	6	2	1	FIS/01	Y	
18	Weak interactions in the standard model and beyond	6	2	1	FIS/02	Y	
19	Introduzione alla teoria dei processi stocastici ed applicazioni alla fisica	6	2	1	FIS/02	N	
20	Statistical Mechanics of Disordered Systems	6	2	1	FIS/02	Y	
21	Introduzione alla gravita' quantistica	6	2	1	FIS/02	Y	