

Short Presentation of the Courses offered by the Physics Department

Università' agli Studi di Torino

Presidente del CCS in Fisica e Ottica e Optometria

Offered Courses

- Graduate courses
 - Physics
 - Optics and Optometry
- Master courses
 - Physics
 - Astrophysics and Theoretical Physics
 - Physics of the Ambient and of Advanced Technologies
 - Nuclear, Sub-nuclear and Biomedical Physics
 - Complex Systems Physics
- We collaborate to:
 - Graduate and master courses in: Material Sciences
 - Graduate course in: Conservation and Restoration of Cultural Heritages
- PhD
 - Physics and Astrophysics
 - Collaborate to Material Science and Complex systems for life sciences

- Lectures are organized in three periods:
 - 9-10 weeks each
 - ~ 20 September - ~ 20 November
 - ~ 15 January - ~ 15 March
 - ~ 20 April - ~ June
- September 10-20 “introductory courses” for high school students
- First year courses of Physics Graduate are divided in two parallel classes
 - A-L and M-Z
- Four Sessions for examinations
 - December
 - ~ 15 March - ~ 15 April
 - July
 - September
- Most of the examinations require written and oral tests
- Examination notes in 30/30
- Graduate Course Final note expressed in 110/110 derived:
 - Mean examination note (weighted by credits)
 - 3 points bonus if the examinations are sustained in three years
 - 3 points to evaluate the final thesis

- Unlimited student number at the graduate course in Physics

2011/12	2012/13	2013/14	2014/15	2015/16
141	148	150	151	200

- Limited number of students (35) for O&O
- Admission to Master courses is not limited,

2011/12	2012/13	2013/14	2014/15	2015/16
79	84	79	~80	?

an interview is required if:

- Graduate note $< 100/110$
- Physics laureate in other universities
- Complex systems: around 20 students/year

- $\sim 40\%$ students high school final note $> 90/100$
- At the end of first year $\sim 10\%$ abandonment
- Graduation time ($\sim 85/\text{year}$):
 - 3 years $\rightarrow \sim 86\%$
 - 4 years $\rightarrow \sim 11\%$
 - 5 or more years $\rightarrow \sim 3\%$
- Almost all students continue with master studies

	I period	II period	III period
First Year	Calculus 1 (9cr.)	Calculus 2 (6cr.)	English 1 (3cr.)
	Geometry and Linear Algebra 1 (9cr.)	Mechanics (10cr.)	Waves, Fluids and Thermodynamics (8cr.)
	Informatics techniques for physics (3cr.)	Physics Laboratory 1 (12cr.)	

1 CFU (credit) == 8 hours lesson

	I period	II period	III period
Second Year	Calculus 3 (6cr.)	Mathematical methods in physics Introduction (6 cr.)	Analytical and statistical Mechanics Or Mathematical methods for classical mechanics (6cr.)
	Electricity and Magnetism (9cr.)	Electromagnetism and Optics (6 cr.)	Advanced Electromagnetism (6 cr.)
	Chemistry (6cr.)	Physics Laboratory 2 (12 cr.)	

	I period	II period	III period
Third Year	Quantum Mechanics I (9cr)	Introduction to nuclear and sub-nuclear physics with Laboratory (96+3 cr.)	Free Course or Stage (6 cr.)
	Similar/Supplementary Course (6 cr.)	Atomic and Solid State physics with Laboratory (6+3 cr.)	Final Thesis (6 cr.)
	Free Course (6 cr)	Similar/Supplementary Course (6 cr.)	

Choice of “Similar/Supplementary” courses: Physics and the Universe, Physics of Climate, Geometry and Linear Algebra 2, Electronics, Electronics Laboratory, Mathematical Methods of Classical Physics, Quantum Mechanics 2, Mathematical Methods of Physics 2, Fluid Physics, Special Relativity, Physics of Living Matter, History of Physics, Statistical Mechanics,

Master Course in Physics

- Each student must define his own “course of studies” fulfilling these criteria (to be approved by the responsible of the curriculum):
 - 5 typifying courses
 - 2 courses of a different field
 - 2 Similar/Supplementary courses
 - 3 free courses
- Examination notes in 30/30
- Master Course final note in 110/110:
 - Mean examination note (weighted by credits)
 - 6 points attributed by final thesis evaluation

Master Course in Physics Biomedical Curriculum

	I period	II period	III period
First year	Particle Detectors	Laboratory of Nuclear and Sub-nuclear Physics 1	Laboratory of Medical Physics
	Complements of Mathematical Methods	Complements of Quantum Mechanics	Neural Networks
	Numerical Analysis and Simulation Technology	Relativistic Cinematic and Accelerators	
Second Year		Thesis	

Plus four courses of which:

- a) **Principles of Physiology**
- b) **2 Free choice**
- c) **1 out of a guided sample**

Master Course in Physics

Nuclear Sub-nuclear Physics Curriculum

	I period	II period	III period
First year	Particle Detectors	Laboratory of Nuclear and Sub-nuclear Physics 1	Laboratory of Nuclear and Sub-nuclear Physics 2
	Relativistic Quantum Mechanics	Foundations of Field Theory	Elementary Particle Physics
	Numerical Analysis and Simulation Technology		
Second Year		Thesis	

Plus five courses of which:

- a) 3 Free choice
- b) 2 out of a guided sample

- 80% of Master students come from our University, remaining 20% from other Italian universities.
- 50% graduate note $> 103/110$
- Time to graduate:
 - 2 years \rightarrow 66.7%
 - 3 years \rightarrow 30.8%
 - 4 or more years \rightarrow 2.5%
- Mean age of graduates: 24.9 years