

The teaching staff of the University of Trento, assisted also by visiting professors, will provide enhancement courses regarding specific topics of biological and biotechnological relevance. Furthermore during the first year, practical laboratory activities are planned, in order to offer to the new students the opportunity to know directly the scientific topics carried out by different research groups. Internationally renowned teachers will be invited to hold specific courses of particular scientific relevance.

COURSE 1st year	TEACHER	HOURS	SYNOPSIS	Period
Laboratory Safety Course	Prof. Ines Mancini, Dr. Alessandro Provenzani and Dr. Yuri Bozzi (University of Trento)	12	General Laboratory Procedures, Equipment Use, and Safety Considerations. The course consists of lectures and hands-on activities and provides training in chemical manipulation, laboratory activity, fire, and radiation safety.	23-24-25 February, 4 March
Statistics	Prof. Andrea Pugliese (University of Trento)	12	Populations and samples; data types; description of data: histograms, measures of centre and spread. Basics of probability: probability models, random variables, probability distributions and their properties: binomial, Poisson and normal distribution. Independence. Parameter estimates; confidence intervals; one and two sided confidence intervals of the mean. Hypothesis testing; comparing one mean with a fixed one, or comparing two means; size of the sample and power of the test. Test of independence of two factors. Introduction to analysis of variance and regression models. Students will be invited to perform statistical computation through computer software (esp. Excel or R, depending on aims), but this will not be described in detail in the course.	22-24 February, 2-3-10-17 March
Bioinformatics	Dr. Enrico Blanzieri and Dr. Andrea Passerini (University of Trento)	12	Design of microarray experiments. Normalization of microarray data. Loess. Significance of Analysis of microarray data, t-test, SAM, Cluster Algorithms. Kmeans. Hierarchical Clustering. Distances used in clustering. Use of R for microarray data analysis. Probabilistic graphical models: probabilistic inference, structure and parameter learning. Hidden Markov Models for biological sequence analysis: Pair-HMMs, Profile HMMs.	18-22-24- 25-30 March, 1 April

<p>Scientific Publishing & Communication (the third day of the Course will take place at the University of Verona)</p>	<p><u>Dr. Ralf Dahm</u> (CNIO, Spanish National Cancer Research Centre Madrid, Spain)</p>	<p>24</p>	<p>The proposed course aims to convey the basic skills needed to publish and communicate scientific results. It combines lectures, which will explain the basic principles of good writing practice and presentation skills, with practical parts during which the students will apply their newly acquired knowledge. The target audiences of the course are PhD students, but the course will also be open to select Master's students and junior postdoctoral scientists.</p>	<p>November 6-7, Room 104, IRST</p>
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The students enrolled at the International Doctoral School in Biomolecular Sciences are obliged to attend courses, seminars, symposia and practical courses organized by the Doctorate School.

Seminars. National and international researches will be invited to present their research within the seminar cycle. Internal seminars (journal clubs and progress report) will be regularly organized in order to present and discuss new published results or to shown data of ongoing research activities. The students must attend at least 15 seminars per year.

Symposia. A symposium (named *work in progress*) which all the doctorate students have to attend will be organized once a year. They will present posters regarding their project and will give a short presentation of their results. For the doctorate student, this meeting will be the occasion to socialize and in particular to know the projects and the results of his/her colleagues. Moreover, they will have the opportunity to gain experience in communication and presentation of scientific results.

COURSE	TEACHER	HOURS		YEAR
<p>Journal Club</p>	<p>PhD candidate</p>	<p>3</p>	<p>The Journal club is an important scientific update and discussion and it is part of the teaching program of the PhD student. The Journal Clubs aim to guide the students to a critical reading of a scientific work, with particular attention to the methodological approaches, research and analysis, other than those normally used in their specific field of research and interpretation of data as well as to implement the knowledge of young researchers. Period: twice a year.</p>	<p>1-2-3</p>

Progress Report	PhD candidate	3	Twice a year, the student must present a summary of the results achieved as well as the status of the project.	1-2-3
<p>Doctoral students must obtain 14 learning credits during the first year, corresponding to 60 educational hours (1 credit every 6 hours), 15 seminars (2 credits), 2 Journal clubs (1 credit), 2 progress reports (1 credit).</p>				