**Molecular Biology**

**Prof. Irene Bozzoni**

**LM- Fisica**

aa 2016-17

Tuesday and Thursday (2.00-4.00 p.m.)

Auletta seminari, ground floor - building CU026

**Program**

* Biology in the 20th century and the birth of Molecular Biology
* DNA structure and replication
* Structure and evolution of genes and genomes
* Cell structure and cell cycle
* Chromatin structure and transcription
* Methods for the study of nucleic acids (Southern/Northern, PCR, sequencing)
* Principles of Genetic Engineering: 1) DNA cloning; 2) Applications of Genetic Engineering to basic research and biomedicine
* Protein translation
* mRNA biogenesis and maturation: polyadenylation and splicing
* Alternative splicing and human diseases
* non coding RNAs: microRNAs and long non coding RNAs
* 28 April
* RNA interference and applications in medicine
* Sequencing and Bioinformatics in Molecular Biology
* Cellular model systems for the study of differentiation (myogenesis)
* Stem cells and therapeutic applications

**Teaching material**

PP presentations on the e-learning platform

Text books:

Biologia Molecolare del gene – VII edizione – Watson et al., Ed. Zanichelli (english version available – Molecular Biology of the Gene)

Biologia Molecolare – R.F. Weaver – Mc Graw Hill –

Il gene X – B. Lewin et al. (Zanichelli)