

# ASP 13<sup>th</sup> cycle

## Opening Ceremony

### ALTA SCUOLA POLITECNICA

The Alta Scuola Politecnica (ASP) is a school for young talents, with a passion for innovation, who wish to develop their potential in a multidisciplinary community. It was established in 2004 as a joint venture of PoliMi and PoliTo, the largest and oldest technical universities in Italy.

ASP selects 150 students per year, among the applicants to the Laurea Magistrale programmes (equivalent to a Master of Science) in Engineering, Architecture and Design at Politecnico di Milano and Politecnico di Torino.

The ASP Community is made up of passionate, motivated and exceptionally qualified students who form a diverse community, coming from about 20 different countries; more than 1/3 of them are women.

The official ASP language is English.

The mission of ASP is to provide high-profile graduates combining in-depth (vertical) disciplinary knowledge from their MSc program with interdisciplinary (horizontal) skills that are needed to work and contribute leadership in a truly multidisciplinary environment.



[www.asp-poli.it](http://www.asp-poli.it)

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#### POLITECNICO DI MILANO

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#### POLITECNICO DI TORINO

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10129 Torino  
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## February 28<sup>th</sup> 2017

Aula Magna "G. Agnelli" - Politecnico di Torino  
Corso Duca degli Abruzzi 24, Torino

## How Noam Chomsky Grammars Influenced Science

Noam Chomsky is the linguist of MIT who talked with mathematicians, psychologists, brain scientists and computer pioneers. In the early '60s he gave us effective structural language models that have inspired language processing for over fifty years and continue to influence software design, data representation, DNA sequencing and much more.

Leaving aside his deep contributions to the philosophy of language and cognitive psychology, the seminar will focus on his early syntactic models, the phrase structure grammars that have been so enthusiastically received and continuously developed within the information technologies.

His syntactic approach, being neutral with respect to the application domain, meets all sorts of needs, such as the languages for writing algorithms, for controlling machines or representing data and for graphical patterns.

The theory of context-free grammars with its rich collection of algorithms for syntactic analysis is a must for those working, e.g., in biology but also in security, on sequential and structural information sequences.

His observation that children acquire their mother language from fragmentary examples, as a language acquisition device, is at the base of learning models using inductive inference.

In spite of the richness and complexity of many applications, the central ideas of phrase structure models are simple enough to be almost immediately understood by non-specialists in a short time. Yet, the mathematical and algorithmic properties of Chomsky's formal languages are a never ending source of challenging problems for mathematicians.

The seminar concludes with a reference to his recent controversial conjectures on how the language faculty was acquired by Homo sapiens.

### FOR INFORMATION

Alta Scuola Politecnica  
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### 10.15

#### Welcome Address

Marco Gilli, Rector, Politecnico di Torino  
Ferruccio Resta, Rector, Politecnico di Milano

### 10.30

#### Alta Scuola Politecnica: Mission, Vision and Strategy

Mario Calderini, Director, Alta Scuola Politecnica

### 10:45

#### The Learning Model at Alta Scuola Politecnica

Marco Ajmone Marsan, Deputy Director, Alta Scuola Politecnica

### 11:00

#### The Social Responsibility of Wealth: Social Innovation and Impact Investing

Luciano Balbo, Founder and President, Oltre Venture

### 11:25

#### Patient, Safe & Smart: Investing in Social Economy

Marco Morganti, CEO, Banca Prossima

### 11:50

#### The ASP Program

Chair: Marco Ajmone Marsan, Deputy Director Alta Scuola Politecnica

#### ASP Courses

Francesca Frassoldati and Raffaella Trocchianesi, ASP Executive Board

#### ASP Multidisciplinary Projects

Alessandra Oppio and Emilio Paolucci, ASP Executive Board

#### ASP Alumni Association

Michela Del Bosco, President, ASP Alumni Association

### 12:40

#### Q&A Session

### 13:00

#### Lunch

### 14.00 - 16.00

#### ASP Honorary Lecture

#### How Noam Chomsky Grammars Influenced Science

Stefano Crespi Reghizzi, Politecnico di Milano and CNR-IEIT

The event will be held in English.  
Video streaming at [www.asp-poli.it](http://www.asp-poli.it)