

# Secure Programming

A.A. 2022/2023

Corso di Laurea in Ingegneria delle Telecomunicazioni

## 0. Course Presentation

**Paolo Ottolino**

**Politecnico di Bari**

# Contacts

**Prof. Paolo Ottolino**

Email: [paolo.ottolino@poliba.it](mailto:paolo.ottolino@poliba.it)

Web page: [on external site](#)

**Secure Programming Lab:**

- **Indirizzo Teams meeting:** [https://teams.microsoft.com/l/meetup-join/19%3ameeting\\_MDUyZjBjMGMtNGlwOC00MTBkLTliZDctNGNmYjc0ZTdkZjly%40thead.v2/0?context=%7b%22Tid%22%3a%225b406aab-a1f1-4f13-a7aa-dd573da3d332%22%2c%22Oid%22%3a%22e16f25a8-46e8-4291-8d72-3be1f475d275%22%7d](https://teams.microsoft.com/l/meetup-join/19%3ameeting_MDUyZjBjMGMtNGlwOC00MTBkLTliZDctNGNmYjc0ZTdkZjly%40thead.v2/0?context=%7b%22Tid%22%3a%225b406aab-a1f1-4f13-a7aa-dd573da3d332%22%2c%22Oid%22%3a%22e16f25a8-46e8-4291-8d72-3be1f475d275%22%7d)
- **Slide:** <https://www.8linux.org/lbg/content/secure-programming-lab-course-slides>

**Student reception: ask by email**



\$ whoami

## Paolo Ottolino

Engineer: master degree in Electronic Engineering (Thesis about AI for Crypto-Analysis)

Cybersecurity Professional: 25+ years of experience (of which, 14 ones in multinational companies). Professional Certification:

CISSP-ISSAP CISA CISM OPST ISO/IEC 27001 ITIL PMP PRINCE2

Professor: yet adjunct professor at Università «Sapienza» of Roma

Cybersecurity Speaker: es. (ISC)<sup>2</sup> SecureXXX, ISACA CSX, EuroCACs, CyberCrimeConference, Security Summit, Forum ICT Security, etc

Item Writer e Subject Matter Expert per (ISC)<sup>2</sup>: partecipa agli «Item Writing Workshop» per la redazione dei test per le certificazioni CISSP e CISSP-ISSAP da 15 anni



# Lesson Times

Each Week: 6 hours lesson

- **Monday: 15.30 – 17.30**
- **Wednesday: 13.30 – 15.30**
- **Friday: 10.30 – 12.30**

POLITECNICO di BARI Dip. di Ing. Elettrica e dell'Informazione BARI - Via E. Orabona n° 4 -				ORARIO DELLE LEZIONI I Anno - C. L. Magistrale - Ingegneria delle TELECOMUNICAZIONI (D.M. 270/04)				ANNO ACCADEMICO 2022/2023 2° Semestre				
ORA	LUNEDI	aula	MARTEDI	aula	MERCOLEDI	aula	GIOVEDI	aula	VENERDI	aula	SABATO	aula
08.30	Traffic Theory and Mob. R. Net. II Mod.: Mobile Radio Net. SCIANCELPONE Vincenzo	8	Traffic Theory and Mob. R. Net. I Mod.: Traffic Theory CAMARDA Pietro	V	Fiber optic propagation PRUDENZANO Francesco	8						
09.30	Traffic Theory and Mob. R. Net. II Mod.: Mobile Radio Net. SCIANCELPONE Vincenzo	8	Traffic Theory and Mob. R. Net. I Mod.: Traffic Theory CAMARDA Pietro	V	Fiber optic propagation PRUDENZANO Francesco	8						
10.30	Traffic Theory and Mob. R. Net. I Mod.: Traffic Theory CAMARDA Pietro	8	Traffic Theory and Mob. R. Net. II Mod.: Mobile Radio Net. SCIANCELPONE Vincenzo	V	Traffic Theory and Mob. R. Net. I Mod.: Traffic Theory CAMARDA Pietro	8	Fiber optic propagation PRUDENZANO Francesco	21	Secure Programming laboratory OTTOLINO Paolo	1		
11.30	Traffic Theory and Mob. R. Net. I Mod.: Traffic Theory CAMARDA Pietro	8	Traffic Theory and Mob. R. Net. II Mod.: Mobile Radio Net. SCIANCELPONE Vincenzo	V	Traffic Theory and Mob. R. Net. I Mod.: Traffic Theory CAMARDA Pietro	8	Fiber optic propagation PRUDENZANO Francesco	21	Secure Programming laboratory OTTOLINO Paolo	1		
13.30	Optical and Radiofrequency Measurements ADAMO Francesco	8	Smart Antennas GRANDE Marco	V	Secure Programming laboratory OTTOLINO Paolo	1	Optical and Radiofrequency Measurements ADAMO Francesco	21	Traffic Theory and Mob. R. Net. II Mod.: Mobile Radio Net. SCIANCELPONE Vincenzo	8	Note V Aula virtuale - lezione online	
14.30	Optical and Radiofrequency Measurements ADAMO Francesco	8	Smart Antennas GRANDE Marco	V	Secure Programming laboratory OTTOLINO Paolo	1	Optical and Radiofrequency Measurements ADAMO Francesco	21	Traffic Theory and Mob. R. Net. II Mod.: Mobile Radio Net. SCIANCELPONE Vincenzo	8		
15.30	Secure Programming laboratory OTTOLINO Paolo	V	Fiber optic propagation PRUDENZANO Francesco	V			Smart Antennas GRANDE Marco	21	Smart Antennas GRANDE Marco	8	Curricula: Telecommunications System: Cyber Security	
16.30	Secure Programming laboratory OTTOLINO Paolo	V	Fiber optic propagation PRUDENZANO Francesco	V			Smart Antennas GRANDE Marco	21	Smart Antennas GRANDE Marco	8	Percorso comune	
17.30	Optical and Radiofrequency Measurements ADAMO Francesco	V										
18.30	Optical and Radiofrequency Measurements ADAMO Francesco	V										
19.30	Optical and Radiofrequency Measurements ADAMO Francesco	V										

# Books and References

## No Textbook

The Secure Programming Lab is a collection of different concepts.

There is no a unique text book containing all the needed information

## Many Free Available Sources

- .gov: US Governmental Institutes and Agencies

**NIST**



- .org: Open Project and Tools

**MITRE** | SOLVING PROBLEMS FOR A SAFER WORLD™



**CSA** cloud security alliance®

Proper links to web resources will be provided during the course for each argument.



# How to Follow the Lessons

**Remotely:** through the application or on the website

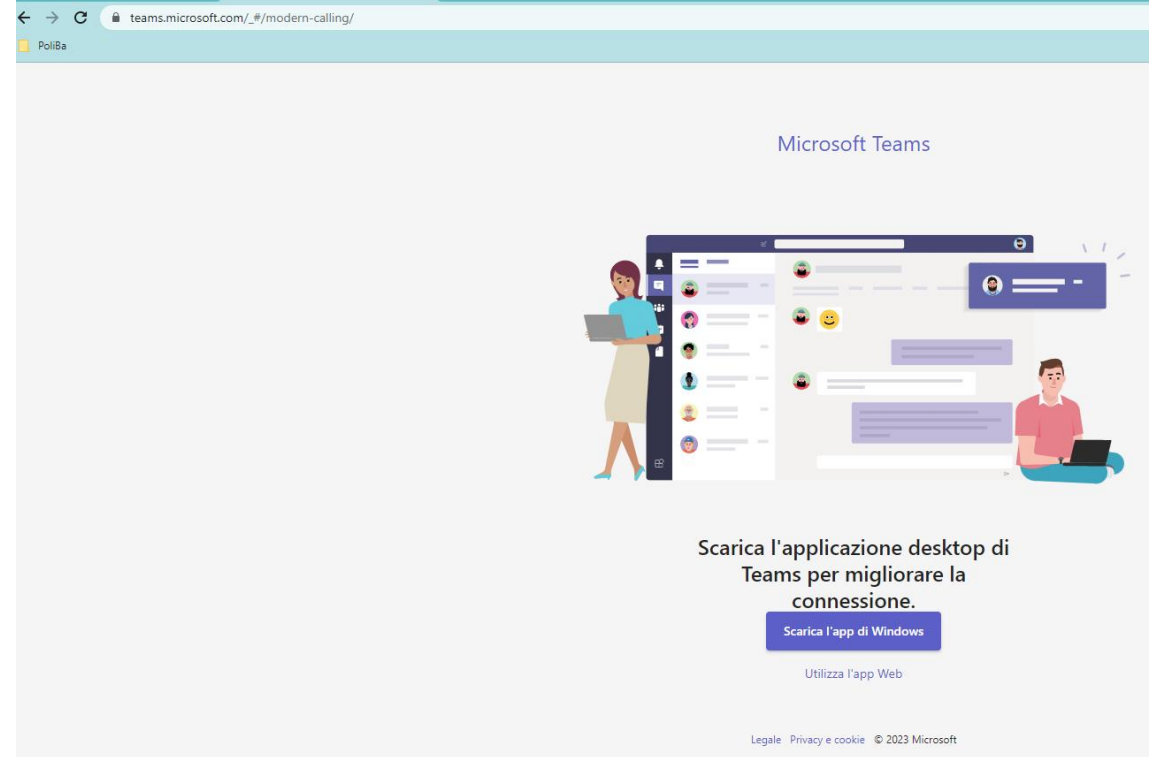
**Waiting Room:** you will have to wait for the teacher to admit you.

- The wait may last up to 10 minutes after the scheduled time
- waiting room, however, checked every 20-30 minutes to admit any latecomers
- Please, select “join with computer audio”

**NickName Zoom:** set your serial number

**Video-Off, Audio-Off:** immediately turn off both your video and your microphone for privacy reasons

**Questions:** use the chat to write the question directly. The teacher will answer, repeating the question



# Examination

To pass the exam, you must:

- write a **paper** (independently or, better, in a group) concerning a topic of the course, established together;
- have an **oral interview**, inherent to the **exam program** and **in-depth study of the thesis** (mainly addressed to the description of the specific component developed by the student).

Possible arguments will be described later in the course, as these will occur.

The thesis **topic**, **objective** and **scope** will be **established together** during a meeting with the involved group of students.



# Paper 1/4

The paper should help on stimulating

## General Cognitive Ability

“the very general mental capability(\*) that, among other things, involves the ability to reason, plan, solve problems, think abstractly, comprehend complex ideas, learn quickly and learn from experience. It is not merely book learning, a narrow academic skill, or test taking smarts. Rather, it reflects a broader and deeper capability for comprehending our surroundings – “catching on”, “making sense” of things, or “figuring out” what to do.”  
[Gottfredson, 1997]

(\*) <https://www.practicereasoningtests.com/cognitive-ability-tests/>

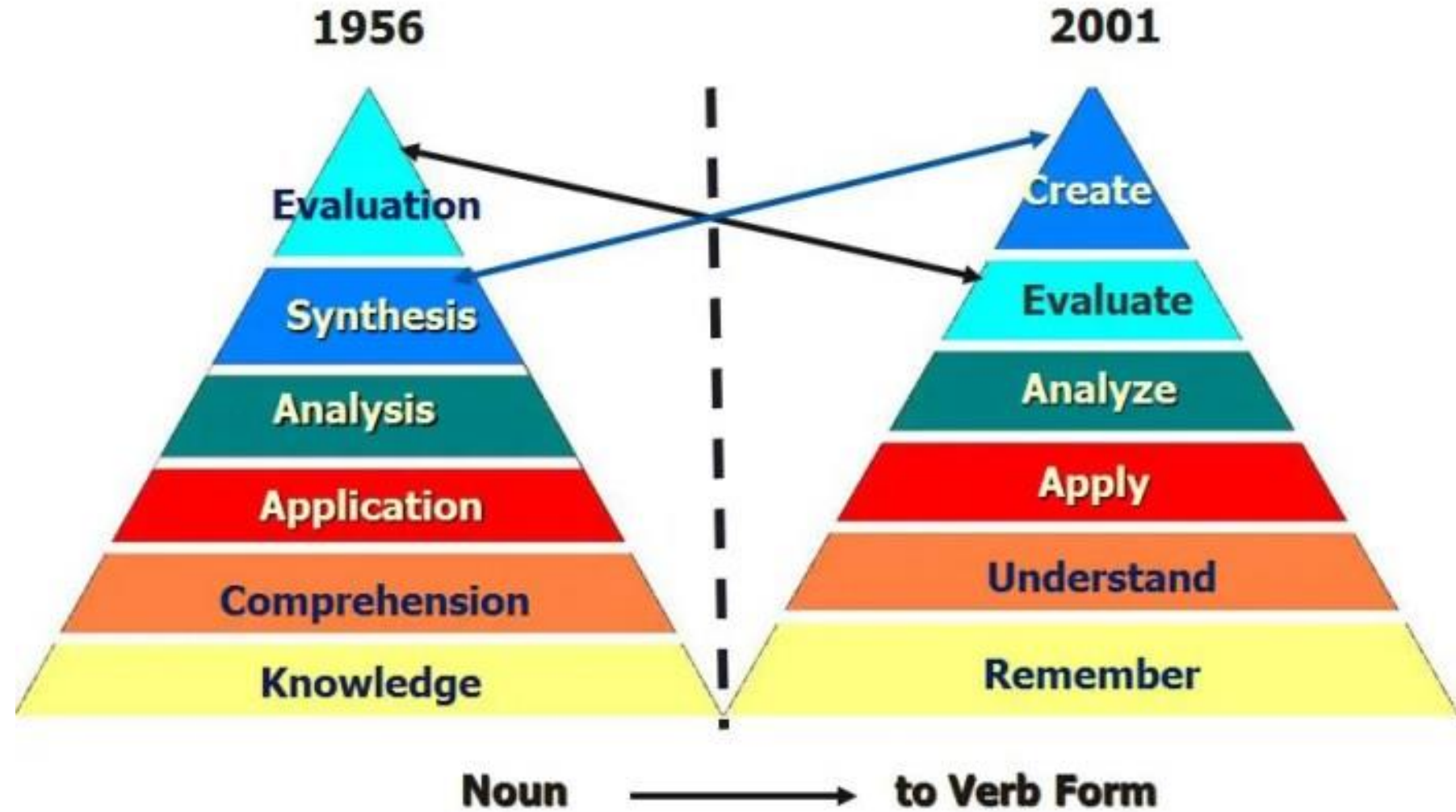




# Paper 2/4

## Bloom 's Taxonomy

Revised by  
Anderson and  
Krathwohl, 2001



# Paper 3/4

## Bloom 's Taxonomy applied

1. **Knowledge:** ~~Remembering or retrieving previously learned material.~~ → Oral Interview
2. **Comprehension:** ~~The ability to grasp or construct meaning from material .~~ → Oral Interview
3. **Application:** The ability to use learned material, or to implement material in new and concrete situations. → OK (Real-World situations, examples)
4. **Analysis:** The ability to break down or distinguish the parts of material into its components so that its organizational structure may be better understood. → OK (Taxonomies, Classifications)
5. **Synthesis:** The ability to put parts together to form a coherent or unique new whole. → OK (Environments, Little Labs)
6. **Evaluation:** ~~The ability to judge, check, and even critique the value of material for a given purpose.~~ → NOK



# Paper 4/4

## Greater Cognitive Abilities



## Theory of Multiple Intelligence

The work of Howard Gardner, in 1983, led to the emergence of the concept of multiple intelligence (MI) which promotes the idea that individuals have multiple intelligences and, by adopting a definition of cognitive ability that includes different types of intelligences, one will be able to identify, appreciate, and cultivate more of its strengths.