

## COURSE DESCRIPTION – ACADEMIC YEAR 2020/2021

<b>Course title</b>	<b>Systems Security</b>
<b>Course code</b>	73050
<b>Scientific sector</b>	INF/01
<b>Degree</b>	Master in Computational Data Science (LM-18)
<b>Semester</b>	2
<b>Year</b>	1
<b>Credits</b>	6
<b>Modular</b>	No
<b>Total lecturing hours</b>	40
<b>Total lab hours</b>	20
<b>Attendance</b>	Recommended especially for the labs.
<b>Prerequisites</b>	Students are expected to have solid mathematical foundation and be familiar with the basics of information security. These pre-requisites are normally covered in any Bachelors in Computer Science.
<b>Course page</b>	<a href="https://ole.unibz.it/">https://ole.unibz.it/</a>
<b>Specific educational objectives</b>	<p>The course belongs to the type "caratterizzanti – discipline informatiche" in the curricula "Data Analytics" and "Data Management".</p> <p>The main aim of the course is to provide in-depth knowledge of the field of system security. The course, supported by labs, aims to teach students the principles and techniques and give students the required practical experience for implementing the secure systems.</p>
<b>Lecturer</b>	<a href="#">Attaullah Buriro</a>
<b>Contact</b>	Piazza Domenicani, 3, Room 1.17, <a href="mailto:attaullah.buriro@unibz.it">attaullah.buriro@unibz.it</a>
<b>Scientific sector of lecturer</b>	ING-INF/05
<b>Teaching language</b>	English
<b>Office hours</b>	Will be set up upon email request.
<b>Lecturing Assistant (if any)</b>	--
<b>Contact LA</b>	--
<b>Office hours LA</b>	--
<b>List of topics</b>	<ul style="list-style-type: none"> <li>• Security by design</li> <li>• Security coding</li> <li>• Data security</li> <li>• Security of distributed systems</li> <li>• Vulnerabilities and attacks</li> <li>• Social security</li> </ul>
<b>Teaching format</b>	Class room lectures and lab sessions
<b>Learning outcomes</b>	<p>Knowledge and understanding:</p> <ul style="list-style-type: none"> <li>• D1.1 - Knowledge of the key concepts and technologies of data science disciplines</li> <li>• D1.12 - Basic knowledge of the main ethical and social implications of data science</li> </ul>

	<p>Applying knowledge and understanding:</p> <ul style="list-style-type: none"> <li>D2.12 - Ability to analyse and improve data privacy and data security features in the context of complex software infrastructures</li> </ul> <p>Making judgments</p> <ul style="list-style-type: none"> <li>D3.2 - Ability to autonomously select the documentation (in the form of books, web, magazines, etc.) needed to keep up to date in a given sector</li> </ul> <p>Communication skills</p> <ul style="list-style-type: none"> <li>D4.1 - Ability to use English at an advanced level with particular reference to disciplinary terminology</li> </ul> <p>Learning skills</p> <ul style="list-style-type: none"> <li>D5.2 - Ability to autonomously keep oneself up to date with the developments of the most important areas of data science</li> </ul>
<b>Assessment</b>	Written and lab: written exam with verification questions, conducting experiments and evaluating results.
<b>Assessment language</b>	English
<b>Assessment Typology</b>	Monocratic
<b>Evaluation criteria and criteria for awarding marks</b>	<p>Assessment 1: 40% points (lab activity)          Assessment 2: 60% points (written exam)</p> <p>Assessment 1: ability to perform the experiment/project, skill in applying knowledge in a practical setting, ability to summarize in own words.</p> <p>Assessment 2: clarity of answers, ability to recall principles and methods used in system security, skill in applying knowledge such as testing the security of systems.</p>
<b>Required readings</b>	Lecture material (slides, notes, scientific papers, etc.) provided by the lecturer.
<b>Supplementary readings</b>	<p>William Stallings and Lawrie Brown, "Computer Security Principles and Practices", 3<sup>rd</sup> Edition, Pearson (2015)</p> <p>Michael E. Whitman and Herbert J. Mattord, "Principles of Information Security", 5<sup>th</sup> Edition, CENCAGE Learning</p> <p>CompTIA Security+ Guide to Network Security Fundamentals 6<sup>th</sup> Edition, Mark Ciampa ISBN 978-1337288781</p>
<b>Software used</b>	Will be provided by the lecturer during lectures/lab sessions.