



### STATISTICS FOR RESEARCH AND TECHNOLOGY

<b>Enrollment year</b>	2021/2022
<b>Academic year</b>	2021/2022
<b>Regulations</b>	DM270
<b>Academic discipline</b>	SECS-S/02 (STATISTICS FOR EXPERIMENTAL AND TECHNOLOGICAL RESEARCH)
<b>Department</b>	DEPARTMENT OF CLINICAL-SURGICAL, DIAGNOSTIC AND PEDIATRIC SCIENCES
<b>Course</b>	ORTHOPAEDICS TECHNIQUES
<b>Curriculum</b>	PERCORSO COMUNE
<b>Year of study</b>	1°
<b>Period</b>	(04/10/2021 - 21/01/2022)
<b>ECTS</b>	2
<b>Lesson hours</b>	16 lesson hours
<b>Language</b>	Italian
<b>Activity type</b>	WRITTEN TEST
<b>Teacher</b>	GENTILINI DAVIDE - 2 ECTS
<b>Prerequisites</b>	The course is part of the basic training of students: together with Physics, Medical Statistics and Computer Science, it is a prerequisite for lessons and activities in the healthcare field. To better follow the course, the student must have attended and acquired basic skills in Medical Statistics and Biometrics.
<b>Learning outcomes</b>	<p>The course gives tools for bivariate analysis and interpretation of data in healthcare area.</p> <p>In detail, the course aims to develop the theoretical and practical knowledge of the most frequent inferential statistical methodologies (knowledge and comprehension), as well as the ability to correctly apply this knowledge both to new experimental situations and to published research studies (ability to apply knowledge and comprehension).</p> <p>At the end of the course the student will be able to independently</p>

	perform basic statistical analyses and communicate in an appropriate way the findings, as well as to understand and critically evaluate the published evidences in relation to their work context.
<b>Course contents</b>	<p>Inferential statistics</p> <ul style="list-style-type: none"> <li>- Test of hypothesis, type error I and II, p-value.</li> <li>- General t-test.</li> <li>- Parametric unpaired and paired t-test.</li> <li>- Test on correlation coefficient.</li> <li>- Chi-squared test.</li> <li>- Statistical and clinical significance.</li> </ul>
<b>Teaching methods</b>	<p>The plan of the course is based on academic lectures and practical section (problem solving approach).</p> <p>The course is organized in lectures and practical exercises. With the problem solving approach, learners will be introduced to the correct application of inferential analysis procedures and interpretation of results.</p> <p>Practical exercises are not aimed at the application of theoretical concepts on experimental data sets, but at the interpretation / comprehension of scientific evidence deriving from the correct application of inferential statistics techniques.</p>
<b>Reccomended or required readings</b>	<ul style="list-style-type: none"> <li>- Lantieri P, Risso D, Ravera G. Statistica medica per le professioni sanitarie. McGraw-Hill.</li> <li>- Triola, Triola. Fondamenti di Statistica per le discipline biomediche. Pearson, 2017</li> <li>- MC Whitlock, D Schluter. ANALISI STATISTICA DEI DATI BIOLOGICI. Zanichelli.</li> <li>- Swinscow &amp; Campbell. Le basi della Statistica per le Scienze bio-mediche. X Edizione. Minerva Medica.</li> </ul> <p>Any other Biostatistics or Medical Statistics manual may be used. Useful material will be on Kiro platform.</p>
<b>Assessment methods</b>	<p>The examination will be written with a problem solving approach and integrated with Medical statistics and biometry. The student must demonstrate not only to know and correctly apply the techniques of analysis (knowledge and skills), but to be able to interpret the results obtained and communicate in a scientifically correct way the evidences form the analyses (competence). Three closed questions on theory aspects are also provided.</p>
<b>Further information</b>	<p>The Professor takes appointments (Dept. of Public Health, Experimental and Forensic Medicine, U.O. of Biostatistics and Clinical Epidemiology, Via Forlanini 2, e-mail: svillani@unipv.it), usually on Tuesday.</p>
<b>Sustainable development goals - Agenda 2030</b>	<p><a href="#">\$lbl_legenda_sviluppo_sostenibile</a></p>