LAUNCH OF THE "TRANSLATIONAL MEDICINE" MASTER'S DEGREE

"Translational Medicine Expert" Master's Degree Sample Curriculum

Item name	Credit value	Every class / semester	Theoretical hours / semester	Class meeting / semester	Pre-requisites	Class base	Subject Synopsis
1. SEMESTER							
Systematic reviews and meta-analyses	2	28	8	20		Exam	The aim of this module is to train participants to conduct systematic reviews and meta-analyses. Students will learn to formulate clear research questions and develop rigorous systematic search strategies. They will also develop critical appraisal skills, assess the quality and relevance of included studies, and understand the implications of the results for clinical practice.
Clinical trials	2	31	11	20		Exam	This course teaches the design, conduct, and analysis of clinical trials. Students will explore different types of trials, including randomized controlled trials (RCTs), cohort studies, and case-control studies, and their applicability. The course covers ethical considerations, regulatory requirements, trial registration, and pitfalls and biases.
Registers / Registries	1	16	6	10		Exam	This module introduces students to the concept, design and management of clinical records. They will learn how to create, maintain and manage records, ensuring data quality and compliance with ethical and legal standards.
Introductory statistics	1	13	3	10		Exam	In today's data-driven world, a solid understanding of statistics is essential for making informed decisions, conducting research, and understanding the world around us. In this course, you will learn about fundamental statistical concepts and techniques, such as data collection, descriptive statistics, probability, hypothesis testing, correlation, regression, survival analysis, diagnostic tests, and study designs. We aim to make these concepts accessible and engaging, ensuring that you fully understand the subject. Access to thematic, comprehensive educational materials, quizzes to test your knowledge, and exercises to practice the concepts mentioned in the videos.

Contributing statistics	1	12	2	10		Exam	This course focuses primarily on the practical understanding of data mining. It helps you understand how to extract important information from publications with sufficient accuracy so that the extracted data can produce good results. We will cover the concepts of different effect sizes in a one-group design (mean, median, correlation, and proportions) and in two- or more-group designs (mean difference, risk ratio, odds ratio, incidence ratio, and hazard ratio). and practice data mining.
Scientific discussion 1	8	107	0	107		Pre-senta-tion	This course simulates a scientific conference, teaching presentation and debate skills face-to-face. Students present their own scientific projects and participate in question-and-answer sessions to defend their research approaches and results. They also participate in critically evaluating and questioning the presentations of their peers, teaching listening, questioning, and feedback skills.
Scientific Project Management 1	7	96	0	96		Parti-cipa-tion	This practical course will teach students the basics of managing a scientific project from start to finish. It will integrate and include weekly meetings with the project team and larger group meetings with the topic-specific research group to review progress and discuss challenges.
Seminar presentations	1	4	4	0		Con-dolen-ces	Occasional lectures by prominent researchers and research organizers, a few times per semester
Personal and leadership social skills 1	5	70	15	55		Prac-tice	This course teaches personal and leadership skills essential for a successful career. The curriculum includes public speaking and presentation skills, effective communication, adaptability, time management, and leadership. Additional areas of focus include teamwork and collaboration, and crisis prevention and management.
Publication creation	1	15	4	11		Exam	This course teaches the process of writing a scientific publication. Students will learn about the structure and style of an article, and the importance of a clear narrative. Workshops provide hands-on experience in drafting, revising, and refining articles.
Publication management	1	11	0	11		Exam	This course focuses on the post-submission life cycle of scientific articles, including peer review, review, and publication processes.
Total	**30**						
2. SEMESTER							
Personal and leadership skills	3	42	9	33	Personal and leadership	Prac-tice	This course further develops critical personal and leadership skills that are tailored for scientific and academic

social skills 2					ability 1		leadership. The curriculum covers analytical and strategic thinking skills, the habits and traits of successful researchers, and introduces the Grant Writing and Entrepreneurship program, which enables students to secure funding and translate research into viable business opportunities.
Biostatistics in translational medicine	1	13	2	11	Introductory statistics	Exam	This course provides a deeper understanding of the elements of probability and statistics that are necessary for understanding meta-analysis and registry analysis. Topics begin with basic statistical concepts (sample, population, data types, etc.), the necessary elements of probability (probability, odds, risks, and their ratios), and probability variables and their distributions (binomial, normal). We discuss descriptive statistics and the logic of inferential statistics, point and interval estimates, and Popper's falsification theory. We conceptually introduce hypothesis testing, significance, p-values, and error types. We cover parametric and nonparametric tests, correlation, regression, and survival analyses, and diagnostic tests.
Scientific discussion 2	8	107	0	107	Scientific debate 1	Practice	This course simulates a scientific conference, teaching presentation and debate skills face-to-face. Students present their own scientific projects and participate in question-and-answer sessions to defend their research approaches and results. They also participate in critically evaluating and questioning the presentations of their peers, teaching listening, questioning, and feedback skills.
Scientific Project Management 2	7	96	0	96	Scientific Project Management 1	Practice (submitted on paper)	This hands-on course teaches students the fundamentals of managing a scientific project from start to finish. It combines weekly one-on-one meetings with the project team and larger group meetings with the topic-specific research group to review progress and discuss challenges. During these meetings, students gain insight into setting realistic goals, scheduling tasks, managing resources, and adapting to change. Between meetings, students are required to actively work on their projects and apply the strategies they have learned to real-world research scenarios.
Diploma work	10				Scientific Project Management 1	Thesis	Preparation of a thesis based on a manuscript prepared for publication during the student's own research work.
Clinical Pharmacology	1	16	5	11		Exam	The course covers the fundamentals of clinical pharmacology as a translational discipline that focuses on rational drug development and therapeutic use. The course focuses on the following principles of pharmacology: pharmacokinetics, pharmacodynamics, and toxicology; drug discovery and development; and clinical trial protocol design. The course also covers advanced clinical trial concepts such as

							medical device development, advanced therapeutic drugs (e.g., gene therapy), clinical trials and software development in clinical trials, and the basics of pharmacovigilance. This course is intended to complement the other courses in the Translational Research Education Program to provide participants with a broad and in-depth overview of the main methods of clinical research.
Total	**30**						