



FACULDADE DE MEDICINA
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CIR 847 : Scientific Method

Workload: 30 hours

Credits: 02

Nature: Mandatory Master and PhD

Professor Renato Santiago Gomez

Discipline Syllabus: Claude Bernard, the introducer of the scientific method in Medicine, at the end of the nineteenth century observed that the human spirit can not conceive of effects without cause. The vision of a phenomenon always comprises an idea of chance, and all human science consists in the conjugation of the observed effects to their causes. Thus, the scientific method seeks to discover the causes and relate them to their effects, in search of explanations or truths for the phenomena observed. Scientific truth is only achieved through proof, the first rule of Scientific Methodology. The second rule is that a hypothesis, once submitted to the proof and proven its qualities, can only be removed and replaced by another one that better withstands the evidence.

The goal of this course is to introduce to the postgraduate student the fundamentals of scientific methodology (inductive method, deductive method). Motivate him to research in surgery by teaching him the methods for drawing up a scientific work. Topics related to the motivation for the development of a research will be studied; The preparation of clinical, experimental or literature review work; Methods for developing research; Data collection and analysis based on statistical knowledge; The writing of the scientific work and its presentation in events or sending to specialized journals. Application of the scientific method in the planning and execution of the research (variation and control group, planning, research objective, material to be researched, place, time, method of investigation, measurement, causality, sampling, randomness, Ethics in research, etc.).

The teaching method will be based on theoretical discussions in panels complemented by practical experimental activity and in the laboratory where the student will have the



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opportunity to propose or develop new researches. The evaluation system will consider participation in the discussion groups and final technical report

Classical and modern methods will be discussed in panels and in practice, both for student development in the execution of the research.

1. Formulation of the hypothesis
2. Research protocols
3. Design with randomized controlled samples
4. Case-control research design
5. Cohort research design
6. Comparative cross-sectional design of parallel groups
7. Case study and research on rare syndromes
8. Calculation of the sample n
9. Variables in clinical research and elaboration of protocols
10. Types of variables according to their function
11. Control and manipulation of variables
12. Data collection and pilot testing
13. Types of statistical tests applicable to clinical and experimental trials

Bibliographic Reference:

SEVERINO, A.J. Metodologia do trabalho científico. Ed. Moraes, 5º Edição, São Paulo, 1980.