STUDENT GUIDE

Subject:

Research and Innovation Neurorehabilitation

Coordinator: Dr. Gabriele Cattaneo

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UAB Code : 44837

Modality: mandatory

6 ECTS

Presential classes:

2nd semester of the 2025-2026 academic year

Dates: from February 16th to 19th, and from February 23rd to 26th, 2026

Schedule: from 9 a.m. to 2:30 p.m.

Course objectives

Review the lines of research related to Neurorehabilitation and study the methodological aspects of research in Neuroscience and Neurorehabilitation: project design, formulation of hypotheses, search, analysis and treatment of the bibliography.

- Lines of research and scientific evidence
- Methodological tools to develop research projects
- Biomedical data storage and analysis programs
- Ethical principles in human and experimental research
- Definition of innovation, presentation of new technologies in rehabilitation and methodology for the definition of clinical requirements.

Workload

6 ECTS: equivalent to 150 hours of student work, of which 45 hours will be taught face-to-face, with 7.5 supervised hours and 97.5 autonomous work.

Learning outcomes

Knowledge:

At the end of the subject, students will be able to:

- Use the appropriate scientific vocabulary in the field of research, innovation and Neurorehabilitation.
- Identify the main lines of research in Neurorehabilitation based on scientific evidence.
- Manage the main biomedical data storage and analysis programs.
- Interpret the limits and ethical principles in human and experimental research.

Skills:

At the end of the subject, students will be able to:

- Critically adapt the causes and physical, psychological and social consequences of disability of neurological origin, applying the most appropriate study techniques for each situation.
- Reason the methodological options necessary to plan, design and develop research and innovation projects in Neurorehabilitation.

Competences:

At the end of the subject, students will be able to:

- Propose work methods through the search for information in the scientific literature in accordance with the mission, vision and values of the institution where you practice your profession.
- Deepen the approach to research projects through the most appropriate methodological tools.

Teaching methodology

The methodological approach of the subject is based on considering the student as the protagonist of his teaching and learning process. The student must be active and autonomous

throughout the process and the teaching staff will support them by providing the necessary information and resources to achieve the best learning results.
The subject is face-to-face with compulsory attendance at least 80% of the classes. Also part of the teaching-learning process is preparing assignments, personal study, reading recommended articles/reports of interest that will be discussed in class (problem solving) and sharing experiences from laboratory/clinical practices (discussions).), oral expository presentations with audiovisual support (inverted class) and workshops held during its development (cooperative learning).

Through the ***e-learning Guttmann platform*** you will have access, among others, to the calendar and class schedules, to bibliographic support documentation, and you can also use it to do a collaborative work between the students and, between the students and teachers to clarify doubts, to share interesting findings, news, articles, books, conferences, etc.

The students will also have hours of autonomous work to integrate what happens in class in person, also having the possibility of being supervised during workshops, exhibitions or via direct consultation with the teaching staff outside of direct teaching hours.

Regarding the supervised activities, during the tutorials, a more individualized attention will be provided to the students to delve into aspects of personal interest.

The information in this document provides a brief summary of the main features of the program and expected learning outcomes.

Contents description:

- Lines of research and scientific evidence
- Methodological tools to develop research projects
- Biomedical data storage and analysis programs
- Ethical principles in human and experimental research
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Learning outcomes evaluation

Les actividades de evaluación se realizarán a lo largo y al finalizar la asignatura. Son actividades que se deberán trabajar de manera individual y consistirán en:
The evaluation activities will be carried out through and at the end of the subject. These are activities that you must work individually and consists of:

- Theoretical tests: It has a value of **30% of the final grade of the subject** and will consist of two short quizzes with short questions at the end of each week of classes.
- Preparation of three works. It has a value of **60% of the final grade of the subject**.
  During the writing process, generative artificial intelligence technology may be used exclusively to improve the readability and language of the manuscript, as well as to

generate illustrative figures of the procedures. It must be stated if this option has been used.

1. **Critical commentary of a scientific article**. As explained in the workshop, the student must critically comment on a scientific article.
2. **Statistical analysis of a database**. As explained in the workshop, the student analyzes a database and report the results in a document.
3. **Innovation Portfolio**. It consists of a collection of ideas that the student must detail through the methodology explained in class

- The attendance and participation in class has a weight of **10% in the final mark of the subject**.

The maximum date for the delivery of the test will be determined according to the calendar established at the beginning of the course.

- If you do not present evidence of learning or you have not attended the minimum number of hours of the programmed activities of the subject (80%), the subject will be "not evaluable". The qualification of not evaluable in the final evaluation report implies exhausting the inherent right in the subject's enrollment.
- You will pass the subject if you obtain a minimum score of 5 points (scale 0-10) as the average mark of the two evidences of learning.
- The final grade will be calculated with the weight corresponding to the theoretical tests (15% each test), preparation of three works (20% each work), and attendance (10%)

Procedure and recovery criteria

The re-evaluation is a process that will be put into operation once the period of publication of the final grades has ended.

- You will be entitled to a re-evaluation if you have obtained between 3.5 and 4.9 in the average grade of the subject.
- The test submitted to the re-evaluation process may not exceed 5.0 points (approved) in the final grade.

The subject's web

In the web of each subject you Will find information of interest for the follow-up of the study:

- Forum of the subject. Through this space you can keep in touch with the teachers or among the other students, to provide suggestions, answer questions, etc.
- News. It is the space from where you Will receive news and announcements about the evolution of the subject.
- Programs. The subject can be downloaded in PDF format, indicating the subjects, schedules and the teaching staff.
- Documentation. Here you Will find information and bibliography of interest that you can consult for the later study of the topics.

- Evaluation of competences. In this space you Will find all the necessary information and the delivery dates of the evaluation that will be done for this subject.

Satisfaction surveys

It is very important that students send us your comments, complaints, and suggestions regarding the subject.

There are two **anonymous** assessment questionnaires. They are short questionnaires, easy to fill out and very important for the coordination of the master's degree, since the opinion of the students will be of great help for the improvement of this subject in future editions.

- Assessment of the teaching staff. Through mobile phone or e-mail, students will receive satisfaction questionnaires for the teaching action of teachers who have participated in the subject.
  https://forms.gle/GLhnS7PdMJjaNi988

- Evaluation of the subject. At the end of the subject, the general evaluation questionnaire of its contents can be answered.
  https://forms.gle/csQ7vsDqh3LetP8D7

Coordination

For any aspect of the organization and planning of the subject you can contact

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RECOMMENDED BIBLIOGRAPHY

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2. Turner-Stokes L. Handbook of neurological rehabilitation, 2nd edition. Journal of Neurology, Neurosurgery & Psychiatry. 1 de abril de 2004;75(4):664-664.
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4. Journal of NeuroEngineering and Rehabilitation [Internet]. Journal of NeuroEngineering and Rehabilitation. [citado 3 de mayo de 2019]. Disponible en: https://jneuroengrehab.biomedcentral.com/
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6. Barnes MP. Principles of neurological rehabilitation. Journal of Neurology, Neurosurgery & Psychiatry. 1 de diciembre de 2003;74(suppl 4):iv3-7.
7. SCIRE [Internet]. Spinal Cord Injury Research Evidence. [citado 3 de mayo de 2019]. Disponible en: https://scireproject.com/