



UNIVERSITÀ DEGLI STUDI DI MILANO

Area Affari Istituzionali, Internazionali e Formazione

Divisione Formazione Universitaria e Formazione Permanente

FUFP/2 RC

Call for applications

Second level Master's programme in Peripheral nervous system disorders

a.y. 2018-2019

THE RECTOR

- Having regard to art. 6 of Law no. 341 dated 19 November 1990;
- Having regard to art. 1, par. 15, of Law no. 4 dated 14 January 1999;
- Having regard to Ministerial Decree no. 270 of 22 October 2004 containing new rules governing the educational autonomy of Universities and substituting Ministerial Decree no. 509 of 3 November 1999;
- Having regard to Milan University Teaching Regulations issued through Rector's Decree on 12 June 2008, in particular article 31 specifying the rules for Master's programmes;
- Having regard to the proposal of the *Dipartimento di Scienze biomediche e cliniche "L. Sacco"*, put forth during the 22 March 2018 meeting, to activate a second level Master's programme in Peripheral nervous system disorders;
- Having regard to the 3 July 2018 decision of the Board of Directors, pursuant to approval by the Academic Senate on 12 June 2018, through which the activation of the second level Master's programme in Peripheral nervous system disorders was approved

HEREBY DECREES

activation for academic year 2018-2019, of the second level Master's programme in Peripheral nervous system disorders.

Learning objectives

All practicals and lectures will be held in English.



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General objective: provide students with current concepts in the functional neuroanatomy and neurobiology of the somatic and autonomic peripheral nervous system and elements of theory and practice in clinical, neurophysiological, neuroradiological and neuropathological diagnostics.

Specific objectives: on completing the programme, students will have acquired:

- neuroanatomy and neurobiology competencies related to the structure, development and function of the peripheral nervous system;
- theoretical and practical competencies regarding diagnostic clinical, laboratory and instrumental pathways in peripheral nervous system disorders and in neurological pain;
- competencies in the theory and practice of pharmacological and non-pharmacological therapy and rehabilitation in peripheral nervous system disorders and in neurological pain;
- competencies regarding prognosis in peripheral nervous system disorders and in neurological pain.

Employment opportunities

The acquired skills and competencies will find application in the national healthcare system and in the pharmaceutical and biotech industry.

Number of places available

The number of places available for admission to the programme is **20**.

The University reserves the right to assess whether it is possible to increase this number. The University also reserves the right to determine whether or not to activate the programme, should circumstances change.

Admission requirements

Those with a second cycle (Master's) or a long single cycle degree in one of the following classes of former Ministerial Decree 270/2004, or in one of the corresponding classes of former Ministerial Decree 509/99, may apply for a place on the programme:



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- LM-6 Biology applied to biomedical research
- LM-41 Medicine and surgery

Selection process

Admission to the programme is based on an interview, during which the candidate's proficiency in English is also assessed, and on evaluation of the candidate's CV.

Evaluation criteria:

- Interview: up to 20 points;
- CV assessment: up to 10 points.

Candidates must score at least 18/30 for admission.

Candidates can complete the interview online (Skype) through methods that allow their identification. The selection process will begin on **15 November 2018**.

The calendar with the date and time of interview for each candidate will be published on the web at <http://www.pns-master.eu/>.

Programme organization

The programme will be delivered at the University of Milan (INFOGIURE hall) in Via Festa del Perdono no. 7, 20122 Milan, from **21 January 2019 to 20 January 2020**.

The teaching programme entails lectures, other types of training and e-learning for a total of **561 hours**.

The programme is divided into the following modules:

Neuroanatomy:

- Functional anatomy of the somatic PNS;
- Functional anatomy of the autonomic nervous system;
- Macro and microstructure of peripheral nerves.



Neurobiology:

- Neurobiology of dorsal root ganglia;
- Neurobiology of autonomic ganglia;
- Ion channels and membrane excitability;
- The cytoskeleton;
- Axon sorting and development;
- Axonal trafficking;
- Schwann cell and myelin-axon interactions;
- Node and paranode;
- Genomic control of nerve myelination;
- Mitochondrial genetics;
- Axon degeneration and regeneration;
- iP models.

Clinical Neurophysiology:

- Axon excitability and signal conduction;
- Motor nerve conduction;
- Sensory nerve conduction;
- Late responses; segmental and brainstem reflexes;
- Needle EMG;
- Single fiber EMG;
- Laryngeal EMG;
- Pelvic EMG;



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- Motor unit estimation techniques;
- Electrophysiological assessment of reinnervation;
- Motor evoked potentials;
- Somatosensory evoked potentials;
- Visual evoked potentials;
- Brainstem evoked potentials;
- Pain-related evoked potential;
- Quantitative sensory testing;
- Microneurography.

Autonomic nervous system:

- Clinical approach;
- Cardiovascular autonomic tests;
- Sudomotor, vasomotor, pupillary tests.

Neuroimaging:

- Magnetic resonance imaging;
- Ultrasonography;
- Corneal confocal microscopy.

Neuropathology and related techniques:

- Nerve biopsy;
- Skin biopsy.

Metabolic and systemic disease-related neuropathies:

- Diabetic neuropathies;



- Deficiency states, infections and connective tissue diseases;
- Angiopathic neuropathies;
- Diabetic neuropathies;
- Paraneoplastic syndromes;
- Chemotherapy-related neuropathies;
- Drug toxicity and poisoning.

Traumatic nerve injuries and nerve tumours:

- Clinic and diagnostics;
- Neurosurgery;
- Primary nerve tumours.

Immune-mediated neuropathies:

- Innate and adaptive immunity in PNS disorders;
- GBS;
- CIDP and MMN;
- Modern clinimetrics: how to measure outcomes;
- Sensory neuropathies and neuronopathies.

Amyloid-related neuropathies:

- Systemic amyloidosis;
- Inherited amyloidosis.

Inherited neuropathies:

- Demyelinating neuropathies;
- Axonal neuropathies;



- Sensory and autonomic hereditary neuropathies.

Rehabilitation:

- Sensory and neuromotor disorders;
- Nerve and limb traumatic injuries.

Neuropathic pain:

- Pathogenesis and diagnostic approach;
- Pain genetics;
- Painful neuropathies;
- Pain in Multiple Sclerosis;
- Pain In Parkinson disease;
- Pharmacological treatments in neuropathic pain: from old drugs to personalised therapy;
- Neuromodulation and other surgical approaches.

Brain plasticity:

- Body recognition;
- Neuroimaging.

Headaches and other cranial pain disorders:

- Migraines and tension type headache;
- Cluster headaches and other TACS;
- Migraine Chronification & Medication Overuse;
- Innovative treatments: CGRP-related therapy;
- Trigeminal neuralgia and other cranial neuralgias;
- Invasive neuromodulation;



- Non-pharmacological treatments and behavioural approaches.

Cancer pain:

- Pain in cancer: diagnosis and treatment;
- Palliative care.

Amyotrophic lateral sclerosis and related diseases:

- Epidemiology and genetics;
- Pathophysiology and clinical features;
- In vitro models;
- In vivo models;
- Fragile function management;
- Treatments and trials.

Spinal muscular atrophy:

- Pathophysiology;
- Clinical features;
- New treatments.

Neuromuscular junction diseases:

- Myasthenia;
- Eaton-Lambert syndrome;
- Congenital myasthenia.

A traineeship period of **225 hours** will follow.

During the programme there will be tests on the topics covered.

The final Master's exam consists of a multiple choice test on the topics covered by the programme.



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Students are not awarded marks, but a pass/fail judgement for course exams and the final exam; in the case of a 'fail' outcome, the exam must be repeated.

The Master's qualification is worth **60 university credits (CFU)**.

Application for admission

Applications must be submitted by **no later than 2pm on 31 October 2018** as follows:

- 1) Register on the University portal through the page <https://www.unimi.it/registrazione/registra.keb>. This operation is not required of those already registered on the portal or in possession of University login credentials, such as Milan University students or graduates (who can proceed directly to the next step);
- 2) Use your credentials to access the SIFA online services (<http://www.unimi.it/apps/hpsifaprivata.xsl>);
- 3) Submit your application for the programme by accessing the SIFA online services> *Servizi di ammissione* (Admission services)> *Master* (Master's programmes) (<http://studenti.divisi.unimi.it/ammissioni/a/master/checkLogin.asp>);
- 4) Pay the non-refundable selection fee of € 50.00 (Regulations on fees, dues, exemptions and scholarships), by credit card or using the MAV (notice of payment) form generated by the online service. Those residing abroad can only pay by credit card.

The English version of the University portal is available at:

https://www.unimi.it/reg_utenti_esterni/ENG/registrazione/form.html

Candidates must also submit the following documents to the Office for Doctoral and Master's Programmes (*Ufficio dottorati di ricerca e master universitari*), by **no later than 2pm on 31 October 2018**, on pain of exclusion from the selection procedure:

- a) Copy of the receipt obtained at the end of the online application procedure;
- b) A detailed cv (specifying the degree held).



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Besides submitting the above, those holding a foreign academic qualification must also present a degree certificate in Italian or English reporting the exams taken and respective marks.

The Office for Doctoral and Master's Programmes (*Ufficio Dottorati di ricerca e master universitari*), via Festa del Perdono no. 7, 20122 Milan, is open to the public Monday to Friday from 9am to 12 noon. The documents may also be sent by fax (02 50312300) or e-mail master@unimi.it.

Enrolment is automatically finalized upon completion of all steps required.

EU applicants may self-certify that they meet the admission requirements and the conditions for being awarded a scholarship.

Ranking

The ranking of successful candidates will be published on the University website through the online SIFA Services (http://www.unimi.it/hpsifa/nonProfiledPage_100.html). To view the ranking select *Graduatorie Ammissioni Corsi post laurea* (Postgraduate Programme Ranking) > *Graduatorie Master* (Master's Programme Ranking). Publication of the ranking list serves as official notification: no personal communication will therefore be sent out to candidates.

Enrolment

Those admitted to the course must enrol **within 5 working days** of the publication of the final ranking using the *Online Services* (*servizi di immatricolazione ed iscrizione*> *immatricolazioni*> *Master* <http://www.unimi.it/apps/hpsifaprivata.xsl>).

At this time, students must also pay the **€ 1,516.00 first instalment** of the enrolment fee; payment may be made by credit card or using the MAV (notice of payment) form generated by the online service. Those residing abroad can only pay by credit card.

Those holding a foreign academic qualification must submit documents (original or authenticated copies) so that the qualification may be assessed (only in terms of admission to the selected Master's course): the academic qualification, its official translation authenticated in accordance with legislation in the country where it was issued, and a Statement of Validity



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(Dichiarazione di Valore in Loco) issued by the Italian diplomatic office in the country where the qualification was awarded. Candidates who were awarded the qualification in an EU State may submit, instead of the translation and Statement of Validity, a Diploma Supplement authenticated pursuant to current legislation or a statement of validity issued by ENIC-NARIC Centres or by the Diplomatic Office in Italy.

At the time of enrolment foreign candidates must deliver a copy of their Italian tax code number (*codice fiscale*) to the Office for Doctoral and Master's Programmes (*Ufficio dottorati di ricerca e master universitari*). Candidates from outside the EU must also show their permit of stay (original copy).

If the enrolment fee is paid by persons other than the student or by an Institution, Agency or Company, these must make the payment in the same way and in respect of the deadlines indicated above, on pain of exclusion from the programme. As the programme is part of the University's institutional activities, no VAT is applied to the enrolment fee and candidates will not receive an invoice.

Those who decide to forgo enrolment must promptly notify the Office for Doctoral and Master's Programmes (*Ufficio dottorati di ricerca e master universitari*) in writing by fax (02 50312300) or e-mail (master@unimi.it).

Enrolment fee

Those admitted to the programme must pay an enrolment fee of € 4,800.00 (comprising insurance coverage).

The enrolment fee must be paid in two instalments:

- First instalment, amounting to € 1,516.00, to be paid by the enrolment deadline;
- Second and final instalment, amounting to € 3,300.00, to be paid by 31 July 2019.

The first instalment includes stamp duty.



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Late payment of the second instalment will be subject to a penalty fee of € 30.00 for payments made up to 15 days after the deadline and of € 60.00 thereafter (Regulations regarding fees, dues, exemptions and scholarships for the academic year).

Withdrawal

Withdrawal from the Master's programme must be notified in writing. If withdrawal occurs prior to the actual start of the programme, any fees paid will be reimbursed, less a 10% charge covering general and administrative.

Enrolment in the Master's programme is incompatible with enrolment in other study programmes (first or second cycle degree programmes, doctoral research programmes, postgraduate specializations, Master's programmes). Studies cannot be interrupted for any reason whatsoever.

Personal loans

Pursuant to the agreement between the University of Milan and Banca Intesa Sanpaolo Spa and until available funding runs out, those enrolled in Master's programmes at the University of Milan can apply for personal loans of up to € 10,000.00 (split into two € 5,000.00 instalments). The terms and conditions for obtaining the loan can be found on the University's website at:

<http://www.unimi.it/studenti/master/16834.htm> .

Further information and privacy

Further information on the organization of Master's programmes may be found on the University's website (<http://www.unimi.it/studenti/master/1188.htm>).

Pursuant to Legislative Decree no.196 of 2003 (law on the protection of personal data), as amended, as well as EU Regulation 679/2016 (General Data Protection Regulation, GDPR), the University undertakes to safeguard the confidential nature of the information provided by applicants; all data provided is processed solely for purposes related to the competition and possibly for managing the applicant's relationship with the University, in compliance with current legislation. The information notice on the processing of personal data is available at <http://www.unimi.it/studenti/865.htm> .

Programme organizational secretariat



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e-mail: masterPNS@theoffice.it

For administrative enquiries

Office for Doctoral and Master's Programmes (*Ufficio Dottorati di ricerca e master universitari*)

Open to the public Monday to Friday 9am-12 noon

via Festa del Perdono no. 7, 20122 Milan

tel. 02.50312302 fax 02.50312300

e-mail: master@unimi.it

Milan, 2 August 2018

THE RECTOR

(Prof. Gianluca Vago)