**PAIN MEDICINE - Existing sub-specialization program**

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Location, date Signature

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WINTER SEMESTER

**I Introductory lectures**

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* Introductory lecture. General advices regarding final research paper in the field od supraspecialization in Pain Medicine
* Promotion of the National clinical guideline of good clinical practice for the diagnosis and treatment of chronic cancer pain

**II Anatomy of pain**

* Neuroanatomy of nocioception
* Anatomy of Pain Pathways

**III The Physiology of Pain**

* Theories of Pain and the Pathophysiology of Peripheral Nerve Damage
* Pain and Neuroplasticity: The Role of Dorsal Roots
* Deep, visceral, inflammatory, neuropathic pain
* Neurophysilogy of acute and chronic pain
* Neurobiology of Pain in Infants and Children, Development of Painful Pathways and Pain Mechanisms

# IV Assessment of Pain

* Assessment of Pain, Clinical Evaluation of Pain, Pain Questionnaires and Pain Scales
* Pediatric and neonatal scales

# V Pain managment

# A Pharmacotherapy of Pain

# Pharmacotherapy of Pain (Nociceptors, Dorsal Dolumns of the Spinal Cord and Descending Modulation)

# Pharmacotherapy of Pain, Classes of Analgesics, Mechanisms of Action

# NSAIL and COX Inhibitors: Pharmacology, Classification, Mechanism of Action, Clinical Application

# Classification and Mehanism of Action of Different Opiods, Pharmacology of Opiods

# Clinical Use of Opiods

# Dependence and Opiophobia

# Topical drugs, Cannabinoids, NMDA Antagonists, Botulimum toxin, Alpha Lipoic Acid – Pharmacology, Classification, Mechanism of Action, Clinical Application

# Antidepressants Coanalgesics for Pain – Pharmacology, Classification, Mechanism of Action, Clinical Application

# Anticonvulsants – Coanalgesics for Pain – Pharmacology, Classification, Mechanism of Action, Clinical Application

# Placebo and Placebo Effect

**VI Non-Pharmacological Treatment of Pain**

* Transcutaneous Electroneural Stimulation
* Interventional Pain Managment
* Topical Anesthesia in Managment of Pain in Children
* Non-pharmocological complementary/alternative methods of Pain Menagment (available methods, mechanism of action and clinical effects of acupuncture)
* The Role of Physical Medicine and Rehabilitation in Pain Managment – physical modalities according to the type od pain and patient population

**SUMMER SEMESTER**

**I Cancer Pain**

* Cancer Pain: Etiology, Classification and Assessment of Cancer Pain, Principles of Pain Managment, Opiod Rotation
* Pharmacotherapy of Cancer Pain, Managment of Breakthrough Pain
* Basics of Cancer Pain Therapy, Radiotherapy, Chemotherapy, Hormon Therapy in Pain Managment
* Urgent situations in Cancer Pain Managment in the Terminal Phase of the Malignant Disease
* Psychiatric comorbidities Associated With Chronic Pain. Depression and Anxiet in Painful Conditions – Recognition and Therapy
* Pain and Imminent Death
* Existential Dimension of Pain

**II Non-cancer Pain**

* Acute and Postoperative Pain- Etiology, Assessment, Therapy
* Pain Managment in Intentsive Care Units
* Acute, chronic and Preoperative Pain Managmetn in Children
* Central Pain, Phantom Pain and Other Phenomena After Amputation
* Osteoarthritis and Rheumathoid arthritis
* Pain during soft tissue infection of the locomotor system
* Back Pain, Neck Pain and Pain in the Upper Extremities: Etiology, Pathogenesis, Therapy
* Abdominal Pain and Geniturinary Pain,

**III Headaches**

* Epidemiology, Classification, Clinical Presentation
* Patophysiology of Headaches
* Sudden Onset Headaches
* Chronic, progressive and non-progressive headache
* Therapy of Primary Headaches
* Trigeminal neuralgia and atypical facial pain

**IV Neuropathic Pain**

* Neuropathic Pain-Epidemiology, Etiology, Classification, Characteristics, Clinical Presentation
* Therapy of Neuropathic Pain
* Neuropathic Components in Low Back Pain
* Postherpetic neuralgia
* Diabetic neuropathia, Pathogenesis, Therapy
* Pain in Older Adults
* Transcutanoeus electrical nerve stimulation
* Complex Regional Pain Syndromes, Type I and II

**V Special Patient Populations**

* Obstetric Pain

**VI EPIDEMIOLOGY OF PAIN. Metodology in research related to pain medicine.**

* Disease surveillance and the importance of measures of morbidity (prevalence, incidence rates, cumulative incidence, and person-time at risk) and mortality (mortality rate and case-fatality) in pain medicine. Standardized rates. Burden of disease (DALY, YLD, YLL)
* Measuring instruments: validation and cultural adaptation of questionnaires
* Questionnaire Construction
* Application of measures of morbidity and mortality in pain medicine according to the type of research. Critical analysis of publications
* Types of studies (observational and interventional studies). A general overview of the importance of epidemiological research in pain medicine. The significance of a descriptive study in research related to pain medicine (case study, case series study, ecological study). Study design. Advantages and disadvantages.
* [Analytical studies](http://www.wikilectures.eu/w/Analytical_Studies). The significance of case-control studies and case-control studies based in a defined cohort (nested case-control study, case-cohort study) in research related to pain medicine. Study design. Potential biases in these studies (selection bias, information bias, confaunding). Odds ratio.
* Significance of cross sectional study in research related to pain medicine. Study design. Potential biases. Sample size. Odds ratio. The significance of cohort studies (prospective and retrospective) in research related to pain medicine. Study design. Potential biases in cohort studies. Relative risk.
* The significance of experimental studies (clinical trials, field experiment, community experiment) in research related to pain medicine. Study design. Randomisation and masking. Problems posed by noncompliance.
* Application of cross-sectional studies, case-control studies, hybrid studies, cohort and experimental studies. Critical analysis of publications.
* The significance of systematic review and meta-analysis in pain medicine
* Application of descriptive study, systematic review and meta-analysis in pain medicine. Critical analysis of publications.
* How to write a scientific paper in pain medicin
* Ethics. [Scientific misconduct and how to prevent it](https://www.vumc.com/branch/research-code-VUmc-AMC/Misconduct/) (good mentorship, [respect for human subjects involved in medical research](https://www.vumc.com/branch/research-code-VUmc-AMC/Human-subjects/), [good clinical practice](https://www.vumc.com/branch/research-code-VUmc-AMC/clinical-research/), [research data management](https://www.vumc.com/branch/research-code-VUmc-AMC/Research-data-management/), [the right to authorship](https://www.vumc.com/branch/research-code-VUmc-AMC/Authorship/), [conflicts of interest](https://www.vumc.com/branch/research-code-VUmc-AMC/Conflicts-of-interest/))
* The natural history of disease: ways of expressing prognosis.
* Research Methodology of Pain
* Epidemiology of non cancer pain (low back pain)

**VII LEGAL FRAMEWORK OF PALLIATIVE MEDICINE AND MEDICINE**

* The rights of patients in accordance with the Law on Health Care, the Law on
* health insurance and the Law on Patients' Rights
* Rights, obligations and types of responsibility of health workers
* Criminal liability of health workers