Course Syllabus

Duration: Semester duration: February-July (spring).

Courses Offered:

	Title		ECTS
1	Research Methodology in Nursing	Theory & Laboratory	3
2	Biostatistics	Theory & Laboratory	3
3	Molecular Analysis Techniques	Theory & Laboratory	3
4	Neurological Nursing	Theory	2
5	Transcultural Nursing	Theory	2
6	Ethics & Deontology in Nursing	Theory	2
7	Clinical Nursing	Laboratory	14
	Total		30

Course analysis

1. Research Methodology in Nursing

Module aims

Students will acquire basic knowledge on research in order to be capable to read, explain and evaluate data and implement them in nursing practice. In addition, they could identify nursing problems that could be studied, participate in research studies and plan qualitative and quantitative research. Students could identify and state research questions and hypotheses, plan-organize and implement research studies, critical appraise scientific papers and submit an evidence-based research protocol.

Module outline

- Introduction to research methodology in health-care settings
- Ethical issues in nursing research
- Research question
- Descriptive and systematic literature review
- Quantitative research
- Qualitative research
- Research Population – Sample
- Research tools (questionnaires, scales) and interview planning in qualitative research
- Data analysis (descriptive and analytic statistics)
- Deductive presentation and discussion of research findings
- Research findings and nursing practice
- Implementation of Nursing Research

2. Biostatistics

Module aims

The aim of the module is to enable students to understand the basic methodological issues related to applied research within the biomedical sciences field. Students are taught descriptive and inferential statistics, statistical measurements and techniques, research methodology and basic sample techniques and organizing field research in biomedical studies. Finally, they are taught how to present the research results through tables and charts.

Module outline (THEORY)

- Study design. Sample and population, sampling error, data collection, types of sampling and study design.
- Data collection and analysis. Data file format, data import, analysis, file management (Excel, SPSS), results management.
- Descriptive Statistical Analysis - Descriptive measures: Positional or Central tendency measures (Mean, Median, Mode. Percentiles, Quartiles), Measures of variance (Range, Variance, Standard deviation-Std., Standard error-S.E. OF-mean, Coefficient of variation, Interquartile Range-IQR, Skewness, Kurtosis), Measures of dispersion (Range, Variance, Standard deviation, Standard error-S.E. of mean, Coefficient of variation, Interquartile range-IQR, Skewness, Kurtosis).
- Creating and editing of graphs. (Histogram, BarChart, Boxplot, Piechart, Scatterplot).
- Test of Normality - Graphical methods (Normal curve on Histogram, P-PPlots, Q-QPlots, Boxplot), Statistical tests (Kolmogorov-Smirnov, Shapiro-Wilk).
- Case control. Null hypotheses, degrees of freedom.
- Statistical analysis using Crosstabs. Chi-square test as a test of independence - Contingency coefficient (Phi & Cramer's V).
- Use of the chi-square test for testing homogeneity (One sample Chi-Square test).
- Correlation analysis: parametric correlation of quantitative variables (Pearson's r), Non-parametric correlation of quantitative & qualitative variables (Spearman's rho, Kendall'stau-b).
- Statistical tests for comparison of means (t-test) - Comparison of a mean value against a predetermined numerical value (One sample t-test) - Comparison of means of two independent samples (Independent samples t-test) - Examination of differences between two means of correlated values - Paired samples (Paired Samples t-test).
- One-way analysis of variance (ANOVA).
- Two-factor analysis of variance (Two way ANOVA)
- Non-parametric Statistical tests for data comparison - Comparison for one sample (Wilcoxonsigned-rank) - Tests of two independent samples (Mann-WhitneyU, WilcoxonW) - Tests of two correlated samples (Sign, WilcoxonSigned-rank, McNemar) - Differences between several independent groups (Kruskal-Wallis H, Jonckheere-Terpstra).
- Analysis of Covariance (ANCOVA)
- Cronbach's alpha reliability test.
- Exploratory Analysis - Principal Component Analysis (PCA).
- Linear Regression Analysis. Hierarchical Regression Analysis.
- Multivariate Analysis of Variance (MANOVA).

Module outline (LAB)

- Using a statistical program (SPSS, PSPP), the tests taught in the theory of the course are applied to health sciences data.
- Computer-based final exams using commercial statistical data analysis packages (SPSS, PSPP).

3. Molecular Analysis Techniques

Module aims

Students will acquire knowledge on the Science of Genetic engineering and Biotechnology, their application on various sectors. Students will learn new genetic methodology used today in the genetic analysis, such as DNA extraction, agarose gel electrophoresis, PCR and sequencing analysis. In addition, they will learn how to use the results of their experiments, as well as bioinformatics tools.

Module outline

- Genetic Engineering-Biotechnology
- Structure and function of nucleic acids
- Central dogma of Molecular Biology
- DNA denaturation- renaturation
- Fine structure of the gene, biological definition of the gene
- Gene regulation in prokaryotes and eukaryotes
- Restriction endonucleases, formation and cloning of recombinant DNA, cloning vectors
- Genetic modification techniques. Genetic modification in plants, genetic modification in fish, genetically modified products and the European Union, Bioethics.
- DNA libraries
- Genetic identification lab equipment
- DNA extraction
- Agarose gel electrophoresis.
- Polymerase Chain Reaction (PCR)
- Restriction Fragment Length Polymorphism (RFLPs) analysis
- Sequencing analysis
- Random Amplified Polymorphic DNA (RAPDs) analysis
- Real Time PCR
- Variable Number of Tandem repeats (VNTRs) analysis
- Allozyme analysis

4.– Neurological Nursing

Module aims

Students will acquire knowledge in order to recognize the symptoms of neurological and neurosurgical diseases, the changes in physical and psychoemotional level, to assess patient's and families' social needs so that they can successfully implement holistic nursing care both within a hospital and after discharge in the community. Upon completion students will be able to recognize changes in neurological and neurosurgical diseases and to plan appropriate nursing care.

Module outline

- Nervous system: central and peripheral
- Aims of neurological/neurosurgical nursing
- Sensory organs
- Stroke
- Epilepsy, Headaches
- Encephalitis, meningitis, herpes, multineuropathies
- Chronic nervous system disorders: Alzheimer's disease, dementia, Parkinson's disease, Gravis myopathy, Multiple sclerosis
- Acute nervous system disorders: cerebral pressure, cerebral oedema, brain injury, brain tumors, hydrocephalus
- Traumatic Brain Injuries
- Spine injuries, spine tumors
- Patient rehabilitation, Family support

- Preparation for discharge and continuity of care

5. Transcultural Nursing

Module aims

The aim of the module is to help students understand the concept of "Transcultural/Intercultural Nursing" as a science and to develop methods of reaching people through intercultural care. Students will also develop skills in order to gain knowledge specific to local ethnic minorities and formulate perceptions towards the application of Basic Nursing Care to different cultural groups.

Upon successful completion of the theoretical module, students will be able to apply skills that can be used in the process of gathering information for the education of the target population, as well as in the management and treatment of acute and chronic health problems in the transcultural/intercultural environment. They will also be able to plan care using the nursing process method in order to understand the concept and content of transcultural/intercultural nursing and to realize the role of the nurse. In addition, they will be in a position to analyze nursing care provided in the transcultural/ intercultural environment in the context of primary, secondary and tertiary prevention and to assess the hygiene and safety of the physical and social transcultural/intercultural environment. In addition, they will be familiar with the concepts of culture, health, illness and their interaction in different cultures and will be knowledgeable to report on cultural factors related to mental illness, interventions in transcultural/intercultural nursing and factors affecting the provision of care to different population groups. Finally, they will be able to identify the parameters of quality of transcultural/intercultural care in age groups.

Module outline

- History - Objectives, responsibilities - Definitions of intercultural nursing
- The concepts of civilization, culture, health and illness
- Theory and models of intercultural nursing and health
- Culture, experience and cultural sensitivity of health professionals
- Factors influencing the delivery of care in different cultures nationally and globally
- The transcultural/intercultural dimension of quality of care
- The health of migrants, the provision of health and welfare services
- Transcultural/Intercultural knowledge, sensitivity and competence in child care
- Transcultural/Intercultural mental health nursing
- Human rights, guaranteeing and protecting the right to health.
- Ethical dilemmas and future trends in school nursing

6. Ethics & Deontology in Nursing Science

Module aims

Students will acquire knowledge regarding ethics, deontology and law. They will acquire basic knowledge on civil, criminal and disciplinary law (liability, criminal liability, disciplinary action) in public and private sector. In addition, they will acquire knowledge on Nursing Code of Ethics, basic principle of bioethics, and the implementation of bioethics in clinical research.

Module outline

- Ethics and bioethics
- Basic principle of bioethics
- Bioethics and nursing
- Nurses Code of Ethics in national and international level

- Nurses professional rights
- Elements of Civil Service Code
- Liability, introduction to liability law, legal transaction, trot, legal responsibility & liability for damages
- Liability, conditions for liability, illegal behavior, medical and nursing negligence, patient consent, fault, discrimination
- Patient Rights and Nurses' Rights
- Ethical dilemmas in nursing
- Decision making in nursing practice
- Nursing confidentiality
- Dilemmas regarding genetics, transplantation, euthanasia

7. Clinical Practice Placement

Clinical internship Module aims

Students will implement the theoretical knowledge and skills acquired during previous semesters in patient-centered care and health promotion. Students assess patients' needs, implement appropriate nursing interventions and evaluate outcomes. In addition, they can make clinical decisions, work in a multiprofessional environment, and coordinate the team within the healthcare facility and/or in the community, or work autonomously in the community. Finally, the can provide care in hospital, at home, at school and in the working place.

Module outline
Clinical internship in secondary and tertiary healthcare facilities