Credit Hours: 3 credit hours

Course Description:
An advanced Ph.D. course designed to provide an in-depth knowledge of research issues in a given area. Opportunities are provided to apply knowledge for further development of the student’s research interests and ideas. An in-depth examination of selected theoretical and methodological approaches to the development of research in nursing will be emphasized. Interrelationships between theory, research, and the discipline of nursing will be explored.

Course Objectives:
Upon completion of this course, the student will be able to:

1. Critique theoretical frameworks utilized in the topical area.
2. Analyze common measurement, design, and analysis issues in the topical area.
3. Evaluate the adequacy of the development of theory in selecting nursing research domains and in nursing knowledge. Identify gaps in nursing knowledge.
4. Synthesize theoretical and empirical literature in the student’s selected problem area.

Conduct of the Course:

The course will be conducted as an advanced graduate seminar. The success of this seminar course is closely associated with student preparation (weekly readings) and participation in class discussions and personal reflections. Students are encouraged to bring to class ideas, issues, and questions that emerge from their readings. It is the expectation that all course work will be received on the due date. Late work is subject to a grade reduction and is to be discussed in advance with the faculty.

Evaluation:

I. Preparedness and participation in discussion 1/3
II. Position paper: Topic of your choice 1/3
III. Research presentation and paper: 1/3
Faculty Contact:
Michael Decker PhD, RN, RRT, D.ABSM
School of Nursing 315B
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216-368-2912

Class Meeting Time and Location: Tuesday & Thursday 0930-1215 (total class time of 5½ hrs/week)

Location TBD

Assignments
All students are expected to come prepared to class with assigned readings read before class, and ready to discuss material. This is a fast-paced course covering a large volume of material. There will be 2 papers – a midterm position paper and a final research proposal paper and presentation. The rubric for these will be passed out separately.

Assigned Weekly Readings (to be done before class)

Week 1 – History of sleep medicine and measurement of sleep
June 3rd
1) Sleep and Wakefulness. Kleitman N.
   a) Chapter 1 Definition of terms
   b) Chapter 33 Neural theories of sleep
   c) Chapter 35 The sleep center problem
   d) Chapter 36 The evolutionary theory of sleep and wakefulness
2) The sleep theory of Constantin von Economo. Lavie P.
3) A personal history of sleep disorders medicine. Dement WC
4) Regularly occurring periods of eye motility, and concomitant phenomena, during sleep; Aserinsky E., Kleitman N,

June 5th
Class today will be split between lecture hall and the sleep lab.
1) Polysomnography: Recent data on Procedure and Analysis. Minaritzoglou
   A. Descriptions of EEG wave morphology
2) Sleepiness and vigilance tests. Mathis
3) Berlin Questionnaire. Netzer
4) A new method to measure daytime sleepiness: the Epworth sleepiness scale. Johns
5) Chapter 2: Principles & Practice of Sleep Medicine. Carskadon
6) Chapter 3: Principles & Practice of Sleep Medicine. Bliwise

Week 2a – sleep ontology and theories regarding sleep and memory
June 10th
1) Boosting slow oscillations during sleep potentiates memory. Marshall
2) Sleep-dependent memory consolidation. Stickgold
3) The Role of Sleep in Learning & Memory. Maquet
4) Chapter 8: Principles & Practice of Sleep Medicine. Siegel
5) The ontogeny of mammalian sleep. Frank
6) Ontogeny of EEG-sleep from neonatal through infancy periods. Sher
7) Sleep EEG Evidence of Sex Differences in Adolescent Brain Maturation. Campbell
8) Sleep is neither a passive nor an active phenomenon. Kumar
9) REM consolidation theory. Siegel

Week 2b – chronobiology and circadian rhythms
June 12th
1) New insights into the mammalian circadian clock. Moore
2) The Suprachiasmatic Nucleus Regulates Sleep Timing and Amount in Mice. Easton
3) Role of the CLOCK Protein in the Mammalian circadian mechanism. Gekakis
4) Circadian rhythmicity restored by neural transplant. Lehman
5) Live to the rhythm, slave to the rhythm. Someren.
6) Contribution of circadian physiology and sleep homeostasis to age-related changes in human sleep. Dijk

Week 3 – neural circuits and monoamines
June 17th
1) Principles & Practice of Sleep Medicine Chapter 9: Brain Electrical Activity and Sensory Processing during Walking and Sleep States. Steriade
2) Principles & Practice of Sleep Medicine Chapter 10: REM Sleep. Siegel

June 19th
5) Find and read definition and function of the following:
Focus Papers on neurotransmitters
Norpinephrine
Dopamine
Serotonin
Review
Gaba
Glutamate
Hypocretin

Week 4 – position papers and sleep disorders: insomnia, persistent hypersomnia
June 24th
Position Paper – Peer PowerPoint Presentations

June 26th
Reading TBD

Week 5 – Neurophysiology of sleep disorders: narcolepsy and restless leg syndrome
July 1st
1) Narcolepsy (Decker & Durmer)
2) Neurons Containing Hypocretin (Orexin) Project to Multiple Neuronal Systems (Peyron et al).
3) Narcolepsy Update (AASM task force).

July 3rd
1) Decker plms
2) Review: Restless Legs Syndrome
3) Treatment of RLS with dopamine agents
4) Rye – NEJM – RLS genetics

Week 6 – Neurophysiology of sleep disorders: sleep apnea, sleep apnea’s effect on the developing brain

July 8th
1) Adult Obstructive Sleep Apnea.
2) What Is Central Sleep Apnea
3) Chronic Intermittent hypoxia in humans during 28 nights results in blood pressure elevation
4) Prospective Study of Obstructive Sleep Apnea and Incident Coronary Heart Disease

July 10th
1) The Effect of Chronic or Intermittent Hypoxia on Cognition in Childhood: A Review of the Evidence (bass et al)
2) Habitual Snoring, Intermittent Hypoxia, and Impaired Behavior in Primary School Children (Urschitz et al).
3) Reduced Extracellular Dopamine and Increased Responsiveness to Novelty: Neurochemical and Behavioral Sequelae of Intermittent Hypoxia (Decker at al).

Week 7 – Pharmacology to promote sleep/wakefulness, current topics in sleep research

July 15th
Sleep Pharmacology chapter (Decker)

July 17th
Current topics in sleep research (class to pick readings 2 weeks prior)
Sleep lab?

Week 8 – Presentation on research papers

July 22nd
Class presentations

July 24th
Class presentations