

**Course** NSC 4320.0w1  
**Course Title** Sleep & Sleep Disorders  
**Professor** Faisal R. Jahangiri, MD, CNIM, D.ABNM, FASN, FASET  
**Term** Fall 2024  
**Meetings** Friday 10:00 am-12:45 pm, Online



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#### Professor's Contact Information

**Office Location** JO-3.108  
**Email Address** [FRJ190000@utdallas.edu](mailto:FRJ190000@utdallas.edu)  
**Office Hours** Tue & Thurs. By appointment only  
**Other Information** All course-related communication must be done via UTD's official email.

#### Teaching Assistant's Contact Information

**Name** Wilhelmy, Anna  
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**Office Hours** Wed & Thu 2:00-3:00 pm. By appointment

#### General Course Information

**Prerequisites** Prerequisite: NSC 3361 or equivalent.

**Course Description:** **Sleep & Sleep Disorders** (3 semester credit hours). This four-part lecture series will provide students with a comprehensive understanding of sleep physiology, the pathology of sleep disorders, diagnostic techniques, and treatment modalities. Each lecture builds on the previous one, ensuring a holistic approach to studying sleep and sleep disorders.

1. The first part introduces the science of sleep, including understanding the sleep-wake cycle and its regulation, the basics of neurobiology, and the evolution of sleep across developmental stages, genders, and species.
2. The second part is dedicated to the neurophysiology and pharmacology of sleep and wakefulness, examining common and rare sleep disorders.
3. The third part will discuss methods and tools for diagnosing sleep disorders, sleep labs, sleep clinics, and hospitals as we explore the process of diagnosing and managing various sleep and circadian rhythm disorders.
4. The fourth part will discuss various Approaches to managing and treating sleep disorders, including non-surgical and surgical treatment options.

**Course Purpose:** This course explores the fundamental concepts of sleep, its biological mechanisms, and the wide array of sleep disorders that impact human health. Students will delve into sleep physiology, understanding the sleep-wake cycle, circadian rhythms, and the neurological processes that govern sleep. The course will cover various sleep disorders, including insomnia, sleep apnea, narcolepsy, restless legs syndrome, and parasomnia, examining their causes, symptoms, diagnosis, and treatment options.

In addition to the biological and medical aspects, the course will consider the psychological, social, and environmental factors that influence sleep and sleep disorders. Students will engage with current research, case studies, and clinical practices, gaining insight into the latest sleep medicine and therapy advancements.

By the end of the course, students will have a comprehensive understanding of the importance of sleep in maintaining overall health and well-being and the ability to critically analyze and address sleep-related issues in both clinical and non-clinical settings.

**Learning Outcomes:** By the end of this course, students will be able to:

- Understand and Describe Sleep Architecture:
- Analyze the Role of Circadian Rhythms:
- Identify and Differentiate Sleep Disorders:
- Evaluate the Impact of Sleep Disorders on Health:
- Apply Diagnostic Techniques:
- Develop Evidence-Based Treatment Plans:
- Critically Analyze Current Research:
- Understand the Developmental Aspects of Sleep:
- Recognize the Role of Environmental and Behavioral Factors:
- Communicate Sleep-Related Knowledge:

## Course Structure:

The course will consist of four sections, each with 11 lectures, covering various aspects of Sleep.

**1. Lectures:** Live virtual lectures via Microsoft Teams will be presented. All class recordings will be posted on Teams. Some pre-recorded lectures will be shared for enthusiastic learners' reference.

**2. Quiz:** After sections one, two, and four, there will be a quiz. It is a formative quiz intended to give you feedback on the subject and your understanding. All exams, including final exams, are time-limited online open-book exams.

**3. Required Reading:** Each lecture will have a clearly labeled required reading handout that can be downloaded and printed if needed.

**4. Summary:** Each student must submit a summary of the lecture. These submissions will be graded (scored), with the best submission receiving the highest score and every other submission receiving a score based on comparison. The first ten summaries will receive 5% bonus points. The uploaded file must be in Word format and labeled (Lecture number. Topic. and first and last name).

**4. Infographic:** Each lecture will require the submission of an infographic related to the week's topic. The first ten submissions will receive 5% bonus points. The uploaded file must be in JPG format and labeled (Lecture number. Topic. and first and last name).

**5. Student Presentation:** There are three student presentation days. Each student must select a date during the first week for their Five-minute presentation on any topic covered in class.

**6. Research Blog:** Submit a blog post/short paper with approximately 1000 words. Select any one topic covered in this course. The blog should be written to educate the public about the selected topic. All blogs must be submitted in Word and PowerPoint formats before the deadline.

**7. Final Blog Presentation:** Each student will do THREE-minute in-class presentations of their blog on Nov 11, 2024. You will be graded on your submission, presentation, and timing.

**Readings Materials** PDF handouts of all the lectures will be provided during the course. In addition, all the PowerPoint presentations will be available in PDF format for download on eLearning.

## Course Assessments:

Required assignment completion before proceeding to the next week:

- Infographic (Due Sundays 11:59 pm CST)
- Required reading – summary submissions (Due Tuesdays 11:59 pm CST)
- Quiz

Research Blog submission and presentation.

Exams I, II, and III.

Final Exam.

### Assignments & Academic Calendar

|              | Week                        | Topics  |
|--------------|-----------------------------|---|
| INTRODUCTION | <b>Lecture 1: 08/23</b>     | History of Sleep and Sleep Medicine & Phylogeny<br>Sleep Across Ages and Gender   |
|              | <b>Lecture 2: 08/30</b>     | Sleep Cycle: Physiology in Sleep – How physiology changes during sleep.<br>Psychobiology and Dreaming   |
|              | <b>Lecture 3: 09/06</b>     | Genetics and Genomic Basis of Sleep<br>Sleep Across the Lifespan  |
|              | <b>Lecture 4: 09/13</b>     | Student Presentations<br><b>EXAM I (1-4)</b>  |
| DISORDERS    | <b>Lecture 5: 09/20</b>     | Sleep Deprivation   |
|              | <b>Lecture 6: 09/27</b>     | Sleep Apnea / Hypersomnia/ Insomnias/ Parasomnias   |
|              | <b>Lecture 7: 10/04</b>     | Narcolepsy / Cataplexy  |
|              | <b>10/11</b>                | Student Presentations<br><b>EXAM II (5-7)</b>   |
| DIAGNOSIS    | <b>Lecture 8: 10/18</b>     | Electroencephalography (EEG)<br>Electromyography (EMG)  |
|              | <b>Lecture 9: 10/25</b>     | Polysomnography (Sleep Study)<br>Advanced Diagnostic Techniques: Multiple Sleep Latency Test (MSLT),<br>Maintenance of Wakefulness Test (MWT) |
| TREATMENT    | <b>Lecture 10: 11/01</b>    | Cognitive Behavioral Therapy for Insomnia (CBT-I)<br>Pharmacological Treatments   |
|              | <b>Lecture 11: 11/08</b>    | CPAP and Other Therapies for Sleep Apnea<br>Behavioral and Lifestyle Interventions<br>Emerging Treatments: Hypoglossal Nerve Stimulation      |
|              | <b>11/15</b>                | Student Presentations<br><b>EXAM III (8-11)</b>   |
|              | <b>11/22</b>                | <b>Final Research Paper Presentations</b>   |
|              | <b>11/29</b>                | <b>THANKSGIVING BREAK</b>   |
|              | <b>12/06</b>                | Course Review   |
| FINAL        | <b>12/13</b>                | <b>FINAL EXAM</b>   |
|              | <b>Exam Date &amp; Time</b> | Dec 13, 2024, 7:00 am – 11:00 pm CST  |

**Course Policies:**

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|---|--|
| <b>Grade Distribution</b>                         | Class participation = 10%, Summary= 20%, Infographics = 30%, Research Blog = 15%, Exam I = 5%, Exam II = 5%, Exam III= 5%, Final Exam =10%   |
| <b>Class Participation Grade</b>                  | The "Class Participation" grade will be computed based on the following criteria: (1) attendance, (2) participation in the class discussions, and (3) presentations and participation in presentations.  |
| <b>Grading (credit) Criteria</b>                  | 100-97 = A+, 96-94 = A, 93-90 = A-, 89-87 = B+, 86-84 = B, 83-80 = B-, 79-77 = C+, 76-74 = C, 73-70 = C-, <70 = F  |
| <b>Research Blog</b>                              | Students in the course will submit a blog post/short paper with approximately 1000 words. Select any one topic covered in this course.   |
| <b>Class Attendance</b>                           | <b>Required</b>  |
| <b>Classroom</b>                                  | <b>Online – Microsoft Teams</b>  |
| <b>Infographic/Blog Consent</b>                   | Please sign the online consent for publishing your name with your infographics and blog on social media, books, and journals (if your submission is selected).   |
| <b>College</b>                                    | School of Behavioral and Brain Sciences  |
| <b>Comet Creed</b>                                | <i>The UT Dallas student body voted on this creed in 2014. It is a standard that Comets choose to live by and encourage others to do the same:</i><br><br><i>"As a Comet, I pledge honesty, integrity, and service in all that I do."</i>  |
| <b>UT Dallas Syllabus Policies and Procedures</b> | <i>The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus.</i><br><br><i>Please go to <a href="http://go.utdallas.edu/syllabus-policies">http://go.utdallas.edu/syllabus-policies</a> for these policies.</i> |

**Email Use**

The University of Texas at Dallas recognizes the value and efficiency of communication between faculty/staff and students through electronic mail. At the same time, email raises some issues concerning security and the identity of everyone in an email exchange. The University encourages all official student email correspondence to be sent only to a student's U.T. Dallas email address and that faculty and staff consider email from students official only if it originates from a UTD student account. This allows the University to maintain a high degree of confidence in the identity of all individuals corresponding and the security of the transmitted information. UTD furnishes each student with a free email account that is to be used in all communication with university personnel. The Department of Information Resources at U.T. Dallas provides a method for students to have their U.T. Dallas mail forwarded to other accounts.

**Student Accessibility**

"The University of Texas at Dallas is committed to providing reasonable accommodation for all persons with disabilities. The syllabus is available in alternate formats upon request. If you are seeking classroom accommodations under the Americans with Disabilities Act (2008), you are required to register with the Office of Student Accessibility located in the Administration Building, Suite 2.224. Their phone number is 972-883-2098, and their email is [studentaccess@utdallas.edu](mailto:studentaccess@utdallas.edu). The website is <https://studentaccess.utdallas.edu>. To receive academic accommodations for this class, please obtain the proper Office of Student Accessibility letter of accommodation and meet with me at the beginning of the semester."

***The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.***