Faculty of Health
School of Kinesiology and Health Science

Course: HH/KINE 3650 3.0 FUNCTIONAL NEUROANATOMY
Course Webpage: eClass
Term: Fall 2023
Time and Location: Tues. 1pm – 2:30pm, Thurs. 1pm – 2:30pm, SLH A
Prerequisite: HH/KINE 2031 3.00 or SC/BIOL 4370 3.00 or HH/PSYC 3250 3.00

Course Director: Marcus Watson, PhD (He/Him/Dr. Watson/Marcus)
Email: watsonmr@yorku.ca
Office Hours: by appointment, generally Zoom
Teaching Assistant: TBD

Course Learning Objectives

The student will both recognize, and understand the function of, the main neuroanatomical structures of the human Central Nervous System. This course serves as an anatomical introduction to cognitive neuroscience and the functional circuits of the central nervous system. While strong memorization skills are useful, the ability to apply anatomical knowledge to problem solve clinical cases will be emphasized.

Expanded Course Description

This course introduces the student to the anatomy of the central nervous system. The course covers the various structures in the central nervous system and discusses clinical correlates for each structure. Motor, sensory, learning, and memory systems are covered, as are reflexes/balance and nourishment of the CNS.

The following is a sample of the structures covered:

- Histophysiology
- Spinal Cord including major sensory and motor pathways
- Medulla
- Pons
- Midbrain
- Basal nuclei
- Cerebellum
- Cerebral cortex

- Hypothalamus
- Limbic system
- Thalamus
- Cerebral vasculature
- Cerebral spinal fluid and the meninges

Course Organization

The content of the course will be delivered in person, twice a week on campus. The material will be presented using a combination of lecture and collaborative clinical-case discussion/ reasoning activities. Students are strongly encouraged to read the required reading prior to class to make best use of the instructional time.

Lecture presentation slides are posted prior to the lecture. Barring technical issues, the lecture portion of class will be recorded whenever possible and posted to eClass the following day. Lecture slides and audio recordings are designed to supplement, not replace, lecture attendance.

Key words and concepts (KWC) lists will be provided at the end of each week (or the day of lecture).

Additional materials are provided/linked on the course website to help students learn the anatomical structures and reinforce important concepts. Completion of this material is optional.

Health and Safety Information

In this course, all university community members must comply with York's health and safety protocols, found on the Better Together website.

Course Text / Readings

Patestas, M & Gartner, L.P. (2016) *A Textbook of Neuroanatomy*. (2 ed) Hoboken, NJ: John Wiley & Sons Inc.
You may purchase access to an e-book version of this text via the eClass website.

Technical Requirements for the Course

If we are required to change to remote modes of delivery for any reason, class will proceed using eClass and Zoom. Therefore, a computer or smart device with a camera and microphone is required to complete the course. Additional information will be provided, if needed.

Communication

Please consult with eClass (course announcements), Key Words and Concepts (KWC) lists and the Course Outline prior to e-mailing the Course Director. E-mails about information which has already been made available via eClass and/or the Course Outline will not be responded to.

The course discussion forum on eClass is preferred for questions about course content. Please do use it, the other students will benefit from the questions you ask.

E-mail is best reserved for queries which require urgent, but relatively straightforward, responses; or for queries of a personal nature.

If you do decide to send an e-mail, before you press send, please check that your e-mail:

(1) is coherent and professional. (Avoid text messaging terms, inappropriate language, emoticons, and poor spelling, punctuation, and grammar.)
(2) ***the string "KINE 3650" is in the subject header***
(3) You have signed your e-mail with your name and/or student number.

Copyright Information

These course materials are designed for use as part of the HH/KINE 3650 course at York University, and are the intellectual property of the instructor unless otherwise stated. **Third party copyrighted materials (such as book chapters, journal articles, music, videos, etc.) have either been licensed for use in this course or fall under an exception or limitation in Canadian Copyright law. Copying this material for distribution (e.g., uploading material to a commercial third-party website) may lead to a violation of Copyright law.** The buying and selling of any course material (including lecture slides, evaluation items, etc.) may constitute an infringement of intellectual property rights and/or a breach of Academic Honesty. Additional information on Student Rights and Responsibilities can be found at here.

Evaluation

The estimated workload for this course is approximately 8-9 hours per week. Three of these hours occur in the classroom. It is strongly encouraged that you spend time every week working on the material because it becomes overwhelming to attempt to learn it the day before the exam. You should plan to attend every class and engage with the activities on the course website.

You are expected to know the material listed in the Key Words and Concepts list located in each lecture folder on the course website. This is not meant to be exhaustive, but it should include most of the technical terms used in the course, and reviewing these terms is a great START to a studying process.

Final Grade: The final grade for the course* will be based on the following items weighted as indicated:

- On-line Mastery Quiz (best 8): 10%
- Class Test 1: 20%

- Class Test 2: 20%
- Class Test 3: 20%
- Cumulative Final Examination: 30%

*Final course grades may be adjusted to conform to Program or Faculty grades distribution profiles

There will be three class tests, and one final examination. The tests are scheduled during class time, and the Final cumulative exam will occur in the Final Exam period time slot assigned by the Registrar's Office. Questions will be drawn from weekly lecture material and the relevant textbook chapters, with the greatest focus on content presented in class that overlaps with the readings.

The format of the questions will include multiple choice, fill in the blank, matching, short answer, label the diagrams, and clinical case studies. The class tests will not be cumulative (each test covers only the material since the previous test). The final examination, however, will cover material from the entire course.

Every Tuesday, a timed online Mastery Quiz will be presented on the material from the previous week. This will be available until midnight. There are 10 such quizzes, your best 8 will be used to calculate your mark on this component.

Grading: The grading scheme for the course conforms to the 9-point grading system used in undergraduate programs at York (e.g., A+ = 9, A = 8, B+ - 7, C+ = 5, etc.). Assignments and tests* will bear either a letter grade designation or a corresponding number grade (e.g. A+ = 90 to 100, A = 80 to 90, B+ = 75 to 79, etc.)

Missed Tests: Students with a documented reason for missing a course test, such as illness, compassionate grounds, etc., may request accommodation from the Course Instructor. A make-up test will be provided approximately 10 days after the missed exam. Further extensions or accommodation would have to be discussed with the Course Director in the first instance and may require students to submit a formal petition to the Faculty of Health. You may be asked to provide formal documentation for your absence.

Accommodations: York University shall make reasonable and appropriate accommodations and adaptations in order to promote the ability of students with disabilities to fulfill the academic requirements of their programs. The nature and extent of accommodations shall be consistent with and supportive of the integrity of the curriculum and of the academic standards of programs or courses. Provided that students have given sufficient notice about their accommodation needs, instructors shall take reasonable steps to accommodate these needs in a manner consistent with the guidelines established hereunder.

If any student does require unusual accommodations to access this course, beyond taking exams in the alternate exams centre extra time etc., they are asked to contact the course director (watsonmr@yorku.ca) and arrange an appointment to meet briefly to discuss any

necessary arrangements. Students will need to produce a letter of accommodation from Student Accessibility Services.

IMPORTANT COURSE INFORMATION FOR STUDENTS

All participants in the course, teaching staff and students, will conduct themselves in a thoughtful and sensitive manner. Correct scientific terminology will be the lingua franca in the classroom.

This is an undergraduate course, not the culmination of a clinical neurology degree! Even though we will discuss many issues involving the relationship between the brain and behaviour, you will not be in a position to "diagnose" the problems of another person (including yourself). If the material in this course does evoke uneasiness for you, perhaps because you or a family member has gone through a related experience, please feel free to contact the course director confidentially via phone or e-mail or access the resources of Student Counselling and Development (N110 Bennett Centre for Student Services; 416-736-5297).

All students are expected to familiarize themselves with the following information, available on the Senate Committee on Academic Standards, Curriculum & Pedagogy webpage (see Reports, Initiatives, Documents):
https://secretariat.info.yorku.ca/files/CourseInformationForStudentsAugust2012-.pdf

- Senate Policy on Academic Honesty and the Academic Integrity Website
- Ethics Review Process for research involving human participants
- Course requirement accommodation for students with disabilities, including physical, medical, systemic, learning and psychiatric disabilities
- Student Conduct Standards
- Religious Observance Accommodation

Please refrain from talking to others or making audible comments during class lectures or while another student is responding. If it is necessary to make noise, please leave the room first. Please place your cell phone and other electronic equipment in silent mode during class.

Cheating is unacceptable on this course and any student who participants in this activity can expect to be referred to the appropriate disciplinary authority for their first offence. If you are unclear what does and does not constitute cheating please refer to the Academic Integrity web site (http://www.yorku.ca/academicintegrity) and read the section ‘For Students’. If you have not completed the Academic Integrity Tutorial which is hosted there, then I would urge you to do so.

Tentative Class Schedule

Date	Topic(s)	Textbook Sections
Sept 12	Introduction to the nervous system	Chapter 1, course outline
Sept 14	Gross anatomy of the brain, implications of development	Chapter 6 until brainstem section
Sept 15	QUIZ 1 (online only)	
Sept 19	Histophysiology	Chapter 3
Sept 21	Spinal Cord and reflexes	Chapters 5 and 11
Sept 22	QUIZ 2 (online only)	
Sept 26	Ascending (sensory) pathways	Chapter 12
Sept 28	Review, Q/A	Chapter 13
Sept 29	QUIZ 3 (online only)	
Oct 3	Descending (motor) pathways	Chapter 13
Oct 5	**CLASS TEST 1**	
Oct 10	READING WEEK	
Oct 12	READING WEEK	
Oct 17	Cranial Nerves	Chapter 17 – names, functions, very general info, details only for optic (CN II), oculomotor (CN III), trochlear (CN IV), abducens (CN VI), vagus (CN X
Oct 19	Medulla	Chapter 7 – Medulla section (99-105)
Oct 20	QUIZ 4 (online only)	
Oct 24	Pons	Chapter 7 – Pons section (105-110)
Oct 26	Midbrain	Chapter 7 – Midbrain section (110-115)
Oct 27	QUIZ 5 (online only)	
Oct 31	Basal Nuclei	Chapter 14
Nov 2	Cerebellum	Chapter 15
Nov 3	QUIZ 6 (online only)	

Nov 7	**CLASS TEST 2**	
Nov 9	Reticular formation	Chapter 16
Nov 10	QUIZ 7 (online only)	
Nov 14	Limbic and olfactory systems	Chapters 21/22
Nov 16	Hypothalamus	Chapter 23
Nov 17	QUIZ 8 (online only)	
Nov 21	Thalamus	Chapter 24
Nov 23	Sensory systems	Chapters 19/20
Nov 24	QUIZ 9 (online only)	
Nov 28	Cerebral cortex	Chapter 25
Nov 30	Catchup, course review, Q&A	
Nov 31	QUIZ 10 (online only)	
Dec 5	**Class Test 3**	
Final Exam (Date TBD)		