Course Instructor
Dr. Carolyn Creighton
Office: Rm 3615, Department of Biomedical Sciences, OVC Main Building
Email: ccreigh@uoguelph.ca
Office Hours: Face-to-Face – By Appointment
Virtual – Tuesdays 5:00-6:00pm

Grader
To be announced

Course Structure
This is a lecture only course.
Lectures: Monday & Wednesday
11:30am to 12:50pm
Rm 149, MacDonald Hall (MAC)
Note: Extra class day on Friday, December 1st, 2017 to replace Thanksgiving Monday.

There will be visits to the Human Anatomy Lab in the OVC on the following day:
Monday, October 16th, 2017
Section 1: 10:00am to 11:00am
Section 2: 11:15am to 12:15pm
Section 3: 12:30pm to 1:30pm
Section 4: 1:45pm to 2:45pm

Term tests will be held outside of lecture times on the following dates from 5:45-
6:45pm in LLC 1714
Term Test 1: Wednesday, October 4th, 2017
Term Test 2: Wednesday, November 1st, 2017
Term Test 3: Wednesday, November 22nd, 2017

Course Description
This course will introduce students to the anatomical organization and basic
functional principles of the brain and nervous system. Knowledge of fundamental
neuroscience will provide students with a better understanding of many biological
processes that impact daily life, including learning, memory, and emotions. The
course initially includes a review of the major cell types found in the nervous
system and the basic physiological principles of brain function, and continues
with an examination of functional systems by understanding the
neuronal/anatomical circuitry of these systems. The relationship between normal
anatomy, physiology, and behaviour will be the focus of the course, while clinical case studies will be utilized to illustrate common neurological diseases or events, to provide further insight into normal functioning and understanding of the consequences of when nervous system signaling goes awry.

Prerequisite(s): 1 of BIOM*3200, HK*3810 HK*3940, NEUR*2000, PHYS*2030, PSYC*2410, ZOO*3200, or ZOO*3600

Restriction(s): This is a priority access course. Enrolment may be restricted. Please visit the Department of Biomedical Sciences website for more information.

Credits: 0.5 CUEs

**Course Goals**

Neuroanatomy is the study of the anatomical and functional organization of the nervous system. The overarching goal of this course is to provide students with a detailed knowledge of the functional organization of the mammalian nervous system. This course will highlight the human nervous system as a mammalian model and will examine the gross and microscopic anatomy of the central nervous system. The fundamentally important relationship that exists between anatomy and physiology will be considered, so that students gain an understanding of the importance of normal structure to normal functioning. The use of clinically-based case studies will allow integration of course material and an understanding of how pathology or disease can affect normal functioning of the nervous system and in turn behaviour.

**Learning Objectives**

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

1. Identify major landmarks of the central nervous system and correlate these landmarks with function
2. Describe the basic structural and morphological stages of the development of the central nervous system
3. Integrate structure and function of the nervous system to explain physiological and behavioural responses to external and external stimuli
4. Effectively communicate scientific ideas by constructing and giving a presentation based on a nervous system disease or pathology
### Course Assessment

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<th>Assessment Type</th>
<th>Weight</th>
<th>Description</th>
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| Term Tests      | 30%    | Test #1: Week 4  
                     Test #2: Week 8  
                     Test #3: Week 11  
                     Two highest term test marks will be used to calculate final average |
| Case Study      | 20%    | Symposia throughout the semester |
| Participation   | 10%    | Assessed throughout the term |
| Final Exam      | 40%    | Comprehensive  
                     December 6th 2:30-4:20pm, Room TBA |

**Term Tests & Final Exam:**
The term tests and final exam will consist of a combination of multiple choice, definitions, diagram labeling, and short answer questions. The term tests and final exam will be cumulative, covering all course materials (lectures & case studies) presented up to the test date.

The term tests are scheduled outside of class time.

**Case Studies:**
Case studies will be presented on Wednesdays throughout the second half of the course. Students will be randomly assigned into groups of 4-5 students and given

### Recommended Textbooks

- **Clinical Neuroanatomy & Neuroscience, 7th Edition**  
  ISBN: 9780702058325

- **Essentials of the Human Brain**  
  ISBN: 9780323045704
a patient clinical case. Groups will work together to diagnose the patient and present this diagnosis to the class. Within the group presentation, students should address normal anatomy and functioning of pertinent nervous system structures and how this has been altered in the patient. See the course outline for the case study schedule. Presentations will be evaluated by Dr. Creighton, the course grader, and by peer evaluation.

Participation:
Participation will be graded throughout the semester the following way:
Completion of case study peer reviews: 5 @ 1% each
Attendance at human anatomy lab & quiz completion: 5%

Human Anatomy Visit
Students will visit the Human Anatomy Lab in the OVC. Students will visit several stations that contain specimens pertaining to topics that have been discussed in the course. Human Anatomy Volunteers will discuss the specimens and students will have the opportunity to ask questions and visualize structures such as the brain, spinal cord, cranial nerves, and blood supply.

Assignment Submission & Late Policy
Students are expected to complete their coursework on time. Any late submissions will result in a late penalty of 20% per day (within 24 hours) with a mark of zero for assignments handed in more than 5 days (120 hours) after the due date.

Course Policies & Procedures

Attendance/Classroom Etiquette
Students are expected to come to class on time and turn cell phones to vibrate/silent so as to not disrupt the lecture and fellow students. Laptop computers are permitted in the classroom; however, research has shown that these devices can be disruptive to the classroom environment if students are not engaging in course-related activities such as note taking. Please be considerate of your fellow peers and use laptops for course-related activities only while in the classroom. If a student is using a laptop for unrelated activities such as social media, emailing, or texting and it is evident that fellow students are being disrupted, Dr. Creighton reserves the right to ask the student to leave the classroom.

Courselink
Will be used extensively throughout BIOM*3000. Please visit the site often to make sure you are up-to-date with any changes.
- Lectures: All lecture slides and other important course materials will be posted under the “Content” tab.
- Newsfeed: Any last minute changes and general announcements will be posted within the Newsfeed.
• **Virtual Office Hours:** Office hours will be held online by using Chats.
• **Discussion Boards:** These forums allow for students to ask questions and discuss what is being learned in class. Please direct all course content-related questions to the appropriate forum. Chances are that at least one other student has the same question too!

**Email Communication**
As per university regulations, all students are required to check their @uoguelph.ca email account regularly. All emails from students must include the course code. All emails will be replied to within 24-48 hours.

**Drop Date - 40th class day**
The last day to drop one-semester courses, without academic penalty, is Friday, November 3rd, 2017.

**Remark Policy**
Requests for re-evaluation of a *term test or presentation* must be made, in writing, to Dr. Creighton within one week of return of the term test or presentation evaluation. Only tests that are written in pen will be considered for re-marking. All requests must include appropriate reasoning for why the student deserves additional marks. **Please be aware that an approval for a remark will result in the whole test or the whole presentation being remarked.** This may result in an increase, decrease, or no change in the original mark of the term test or presentation.

**Religious Observance**
Information about the University of Guelph’s policy on academic accommodation of religious obligations can be found online. [http://www.uoguelph.ca/registrar/calendars/undergraduate/current](http://www.uoguelph.ca/registrar/calendars/undergraduate/current)

**Recording of Materials**
Presentations which are made in relation to course work—including lectures—cannot be recorded or copied without the permission of the presenter, whether the instructor, a classmate or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

**Accessibility**
The University promotes the full participation of students who experience disabilities in their academic programs. To that end, the provision of academic accommodation is a shared responsibility between the University and the student.

When accommodations are needed, the student is required to first register with Student Accessibility Services (SAS, formerly Centre for Students with Disabilities). Documentation to substantiate the existence of a disability is required, however, interim accommodations may be possible while that process
is underway. Accommodations are available for both permanent and temporary disabilities. It should be noted that common illnesses such as a cold or the flu do not constitute a disability.

Use of the SAS Exam Centre requires students to book their exams at least 7 days in advance, and not later than the 40th Class Day.

More information: www.uoguelph.ca/sas

**Academic Consideration for Missed Tests/Assignments**

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons, please advise the course instructor in writing, with your name, id#, and e-mail contact, as soon as possible. Please be aware that other exams, vacation, or work schedules are not valid excuses for missing coursework since you can plan ahead and make alternate arrangements if necessary.

If the final exam is missed, application for a deferred exam must be made through a program counselor and The Office of the Registrar as outlined in the Academic Consideration and Appeals section of the Undergraduate Calendar.

See the undergraduate calendar for information on regulations and procedures for Academic Consideration. https://www.uoguelph.ca/registrar/calendars/undergraduate/current/

**Academic Misconduct**

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community – faculty, staff, and students – to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University’s policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

The Academic Misconduct Policy is detailed in the Undergraduate Calendar. https://www.uoguelph.ca/registrar/calendars/undergraduate/current/
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<tr>
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<th>Day</th>
<th>Topic</th>
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<tr>
<td>1</td>
<td>Sept. 11</td>
<td>Introduction to Neuroanatomy/Cells of the NS</td>
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<td>Sept. 13</td>
<td>Action Potentials &amp; the Synapse/Intro to Case Studies</td>
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<td>2</td>
<td>Sept. 18</td>
<td>Embryology of the CNS</td>
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<td>Sept. 20</td>
<td>Brain Topography &amp; the Meninges/Case Studies Part II</td>
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<td>Sept. 25</td>
<td>Ventricles, CSF &amp; Blood Supply</td>
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<td>Sept. 27</td>
<td>Spinal Cord &amp; Spinal Tracts</td>
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<td>4</td>
<td>Oct. 2</td>
<td>Cranial Nerves I</td>
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<td>Oct. 4</td>
<td>Cranial Nerves II</td>
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<td><strong>Term Test #1 5:45-6:45pm, LLC 1714</strong></td>
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<td>5</td>
<td>Oct. 9</td>
<td>Thanksgiving –No Classes</td>
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<td>Oct. 11</td>
<td>Guest Lecture –Dr. Emily Gilbert/Anatomy Pre-lab</td>
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<td>6</td>
<td>Oct. 16</td>
<td>Human Anatomy Outreach</td>
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<td>Oct. 18</td>
<td>Case Studies 1, 2, 3</td>
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<td>7</td>
<td>Oct. 23</td>
<td>The Cerebral Cortex</td>
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<td>Oct. 25</td>
<td>Case Studies 4, 5, 6</td>
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<td>8</td>
<td>Oct. 30</td>
<td>The Cerebellum</td>
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<td>Nov. 1</td>
<td>Case Studies 7, 8, 9</td>
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<td><strong>Term Test #2 5:45-6:45pm, LLC 1714</strong></td>
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<td>Nov. 3</td>
<td><strong>40th Class Day</strong></td>
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<td>9</td>
<td>Nov. 6</td>
<td>Basal Ganglia I</td>
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<td>Nov. 8</td>
<td>Case Studies 10, 11, 12</td>
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<td>10</td>
<td>Nov. 13</td>
<td>Basal Ganglia II</td>
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<td>Nov. 15</td>
<td>Case Studies 13, 14, 15</td>
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<td>11</td>
<td>Nov. 20</td>
<td>Thalamus &amp; Hypothalamus</td>
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<td>Nov. 22</td>
<td>Case Studies 16, 17, 18</td>
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<td><strong>Term Test #3 5:45-6:45pm, LLC 1714</strong></td>
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<td>12</td>
<td>Nov. 27</td>
<td>Hippocampus &amp; Amygdala</td>
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<td>Nov. 29</td>
<td>Guest Lecture –Ari Mendell / Case Study 19</td>
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<td>Dec. 1</td>
<td>Review Class, rescheduled from October 11th</td>
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