Seminar in Neuroscience:
Nervous System Injury and Disease
NEUR 411-DL1: Spring 2022

Instructor: Dr. Gwendolyn (Wendy) Lewis
Instructor e-mail: glewis13@gmu.edu
TA: Apoorva Veerareddy
TA e-mail: aveerare@gmu.edu
Course Format: Online, asynchronous
Credits: 3
Instructor Office Hours: Drop-in office hours are held virtually during the times below. If you are unable to attend a drop-in time, please email me to schedule an appointment.

- **Tuesday, Wednesday & Friday 1pm-2pm.** Drop into the Zoom room to meet. https://gmu.zoom.us/j/4952912681

TA Office Hours (for questions about Journal Entry grades/feedback): TBA

Course Overview

Most likely, you know someone that has been affected by a nervous system disorder. From Traumatic Brain Injury to Alzheimer's Disease, nervous system disorders affect millions of families and have long fascinated doctors, scientists, and the general public. In this course, we will explore what happens when things go wrong in the nervous system. Specifically, we will explore a wide variety of nervous system disorders, focusing primarily on the cellular and molecular mechanisms at play. We will also examine the history, significance, symptoms, and treatment of these disorders. We will accomplish this through a combination of lectures, discussion boards, writing exercises and assignments. This course is designed to develop your skills in reading, analyzing, and interpreting scientific data, while emphasizing practical scientific writing skills.

This course fulfills the Writing Intensive (WI) requirement for the Neuroscience major. Writing intensive courses are required to assign a minimum of 3500 words, provide constructive feedback on drafts, and allow revision of at least one graded assignment. This course meets and exceeds this requirement through the 500-word News Article, 2000-word Grant assignment, and 8x600-word Journal Entries. Constructive feedback will be given on assignments. You will be able to revise portions of the Grant assignment based on feedback before the final assignment is due.

Course Format/Delivery

This course is fully **online and in an "asynchronous" format**, meaning you will NOT be required to log into live virtual sessions. Video lectures will be posted to Blackboard and discussions will take place using discussion boards. Keep in mind that although the course does not meet live, assignments still have firm due dates (see schedule).

This course is divided into weekly lessons. Each lesson will include activities, readings and assignments. Most lessons will begin with a lecture spotlighting a specific disease. After watching each disease lecture, you will 1)take a quiz, 2) read a research paper related to the disease, 3) write a Journal Entry, and 4) contribute to a discussion board. There will be 2 additional major writing assignments. One is a scientific news article, and the other is a mock grant application. Toward the end of the semester, you will record a video presentation of one of the research papers we cover this semester.

Blackboard Login Instructions

To access the course blackboard site, log in to mymason.gmu.edu and select the Courses tab. Under the course list, select the current semester (Spring) and click the course number for NEUR-411-DL1.

Textbook

No textbook is required. Some course material was adapted from Diseases of the Nervous System by H. Sontheimer, ISBN:9780128002445

Technology Requirements

Technology information for all Mason Online Course can be found here (https://masononline.gmu.edu/what-technologies-do-i-need/).

Hardware

- Windows or Macintosh computer with a fast reliable internet connection
- Recommended screen size of 13in or larger for viewing course material
- Computer speakers or headset to listen to video lectures
- Computer microphone or headset to use with tools like Blackboard Collaborate for office hours
- A webcam (built in or external) for recording presentations using Kaltura
- Enough storage space to download required software and save course materials

Software

- Web browser (see Blackboard Support for supported browsers). Your browser must be up to date and running the most recent version on Java.
- Kaltura capture software for recording presentations (Click here for free Kaltura download from Mason)
- Adobe Acrobat Reader to view pdf files (free Acrobat download)
- Microsoft Word and Powerpoint (Microsoft 365 Apps for enterprise available free to students here)

Office Hours

Getting help is easy. Live office hours will be held each week using Zoom. To access office hours- log into Zoom using your Mason account (instructions here https://its.gmu.edu/knowledge-base/how-to-sign-in-to-the-zoom-desktop-application/). Use the Zoom link below to access Dr. Lewis's Zoom room., You will be placed in the waiting room. If students wish to meet privately, I will see them in the order they enter. Once you are in the waiting room, please be patient as I may be finishing with another student. If the session has not been started, check the Blackboard Announcements to see if office hours have been cancelled or rescheduled that week.

- **Tuesday, Wednesday & Friday 1pm-2pm.** Drop into the Zoom room to meet. https://gmu.zoom.us/j/4952912681

Learning Goals

By the end of this course, you will be able to...

- Interpret and analyze primary scientific literature
- Think critically about science and question scientific findings
- Clearly present, explain, and facilitate discussions about scientific data to your peers
- Describe the hallmarks of specific nervous system diseases and explain the cellular and molecular mechanisms involved
- Compare and contrast the mechanisms of different diseases
- Recognize and identify common themes in disease mechanisms
- Examine, analyze, and interpret data from primary literature related to nervous system diseases
- Describe types of disease models and experimental tests used in disease research
- Communicate scientific data for a variety of audiences through translational writing
- Evaluate and critique other's writing
- Develop a unique grant proposal
- Effectively respond to edits and make changes in writing

Grading and Assessments

There are no exams in this course. You will be assessed throughout the course based on a combination of quizzes, assignments, discussion boards, and participation.

Quizzes	10 %
Journal Entries	25 %
Discussion Board Posts	10 %
News Article	10 %
Grant	25 %
Research Paper Presentation	10 %
Participation and Assignments	10 %
(drafts, peer critiques, individual meeting attendance, *Reading the News* assignment)	
Total Grade	**100 %**

Grading Scale:

A+ 98-100%	B+ 88-89%	C+ 78-79%	D 60-69%	F 0-59%
A 90-97%	B 80-87%	C 70-77%		

Assignment Details:

Quizzes- You will take a quiz after watching each set of video lectures. Quizzes are open note. The Syllabus Quiz is not timed and can be take an unlimited number of times. All other quizzes will be timed (usually 20 minutes for 10 questions) and allow 2 attempts.

Journal Entries- After watching each lecture on a disease topic, you will read a research paper and write a 400-600 word Journal Entry. The goal of these papers is to get you thinking and writing about science on a regular basis. Journal Entries will be submitted in Blackboard and will be graded by the TA with constructive feedback given.

Discussion Board Posts- After reading each research paper on the weekly disease topic, we will discuss the topic using a discussion board. You will be required to post to each of these discussion boards 2 times. In the first week of the course, you will post to the "Hello" discussion board 3 times.

News Article- You will write a 500-word review of a primary research paper, written in the style of a news article. It will be targeted to the general public (non-scientists). This assignment will help you develop translational writing skills that are essential for disseminating scientific information to the public.

Grant- Based on previously published data, you will develop a plan for future research and write an NIH-style grant application. The proposal will be written as though you are a student applying for funding from the NIH to complete the proposed research. The assignment will include three essential components of grant: 1) biosketch 2) specific aims, and 3) research strategy. Through this process you will learn what is expected from a real grant application, how to write one, and most importantly, how to support yourself and your ideas. The complete application will be approximately 2000 words and will serve as a capstone for the course. You will submit a draft of the specific aims before the final due date, which I will return to you with notes for editing. You will also be required to meet with me individually to discuss the project before it is due.

Research Paper Presentation- You will record a video presentation of one of the research papers that we read/discuss throughout the course. You will be able to choose which paper you want to present. Details will be provided later in the semester.

Participation and Assignments- Throughout the course there will be several assignments that will be graded for completion and effort. These include drafts for the news article and grant, peer critiques, individual meeting attendance, the group introduction discussion board, and the *Reading the News* assignment.

Policies

Late Work: Late work will incur a deduction of 20% and is due by the last day of class. Drafts and peer critiques are not eligible to be turned in late for credit.
**This policy may be modified on an individual basis at the discretion of the instructor. You must contact the instructor in advance of the due date to request a modification of the late penalty.*

Extra Credit: You can also receive up to 5 points of extra credit by attending a seminar and writing a summary, which will be added to the Journal Entry grade. Information on the Seminar Summary can be found at the end of the Weekly Lessons page in Blackboard. No additional or individual extra credit will be available.

Communication: If you need to contact me, please do so **from your university e-mail account only**. **Include the course name in the subject line and your name in the body of the e-mail**. Check your e-mail and course Blackboard account daily. I will use e-mail and Blackboard to communicate with you regarding changes to the course, syllabus, and other essential information. You are responsible for all announcements posted and sent via Blackboard and e-mail.

Conduct: Be kind and respectful to your classmates. Disrespectful behavior will lead to a potential deduction of points from the course, and an unhappy me. For a guide to online behavior, see these core rules for Netiquette.

Academic Integrity and Plagiarism: Honesty and integrity are issues at the very core of this course and of science as a whole. George Mason has an honor code with clear guidelines for academic integrity. A few of the most important rules that pertain to this course are as follows: 1) All work submitted must be your own should be done individually unless explicitly stated otherwise. 2) When referencing the work of others (this includes published and non-published work or ideas), full credit must be given through appropriate citations and references. 3) You may not use the work of former students to help you with assignments, this constitutes cheating. 4) If you are ever unsure about the rules for an assignment, ask for clarification. Cheating and plagiarism of any form is not tolerated. Plagiarism means using the exact words, opinions, or information from another person without giving the appropriate credit. Any offense will be referred to the Office of Academic Integrity and dealt with in accordance with university regulations.

Disability Accommodations

If you have a documented learning disability or other condition that may affect academic performance you should: 1) make sure this documentation is on file with Office of Disability Services (SUB I, Rm. 4205; 993-2474; http://ods.gmu.edu) to determine the accommodations you need; and 2) talk with me to discuss your accommodation needs.

Mason Diversity Statement*

George Mason University promotes a living and learning environment for outstanding growth and productivity among its students, faculty and staff. Through its curriculum, programs, policies, procedures, services and resources, Mason strives to maintain a quality environment for work, study and personal growth. An emphasis upon diversity and inclusion throughout the campus community is essential to achieve these goals. Diversity is broadly defined to include such characteristics as, but not limited to, race, ethnicity, gender, religion, age, disability, and sexual orientation. Diversity also entails

different viewpoints, philosophies, and perspectives. Attention to these aspects of diversity will help promote a culture of inclusion and belonging, and an environment where diverse opinions, backgrounds and practices have the opportunity to be voiced, heard and respected.
** This is an abbreviated statement, full statement is available at http://ctfe.gmu.edu/professional-development/mason-diversity-statement/*

Privacy and E-mail Use
Students must use their Mason email account to receive important University information, including communications related to this class. I will not respond to messages sent from or send messages to a non-Mason email address. Student privacy is protected under FERPA (https://registrar.gmu.edu/ferpa/).

Need Help? Check out these *Student Services*!

- Learning Services (learningservices.gmu.edu/keeplearning/)
- University Libraries (library.gmu.edu)
- Writing Center (writingcenter.gmu.edu)
- Counseling and Psychological Services (caps.gmu.edu)
- See a longer list of Mason student support services posted on The Stearns Center website.

Add/Drop Deadlines
Deadlines for the Spring 2022 semester can be found on the Mason Academic Calendar page.

What Will We Cover?

Nervous System Injury

- PNS Trauma
- CNS Trauma

Neurodegenerative Disease

- Alzheimer's Disease
- Huntington's Disease

Neurodevelopmental Disorder

- Autism Spectrum Disorder

Demyelinating Disorder

- Multiple Sclerosis

Infectious Disease

- Prion Diseases

Nervous System Cancer

- Glioblastoma

Course Calendar

NEUR 411-DL1, Spring 2021

All due dates are Eastern Standard Time

Weeks	Lessons	Assignments	Due Dates
Week 1 Jan 24- Jan 30	Introduction	• Read Welcome page • Review Syllabus and Course Calendar • Watch Course Introduction Video • Post to the "Hello" Discussion Board forum 3 times • Optional: Post to the "Ask the Instructor" discussion forum if you have questions • Take the Syllabus Quiz • Optional: Meet the Instructor during live office hours Wednesday or Friday 1-2pm	Due Friday 1/28 11:59pm • 1st post to the "Hello" Discussion board • Syllabus Quiz Due Sunday 1/30 11:59pm • 2nd and 3rd "Hello" Discussion Board Post
Week 2 Jan 31- Feb 6	Scientific Writing	• Watch Scientific Writing Lecture Videos • Take the Scientific Writing Quiz • Read and Watch Plagiarism materials • Read and Watch Citations and References materials • Take the Plagiarism and Citation Quiz • Review Research Presentation Guidelines (due at end of semester)	Due Friday 2/4 11:59pm • Scientific Writing Quiz Due Sunday 2/6 11:59pm • Plagiarism and Citation Quiz
Week 3 Feb 7- Feb 13	Peripheral Nervous System (PNS) Trauma	• Watch PNS Trauma Lecture Videos • Take PNS Trauma Lecture Quiz • Read PNS Trauma Research Paper • Write PNS Trauma Journal Entry • Post to PNS Trauma Discussion Board forum 2 times	Due Friday 2/11 11:59pm • PNS Trauma Lecture Quiz • PNS Trauma Journal Entry • 1st Discussion Board Post Due Sunday 2/13 11:59pm • 2nd Discussion Board Post
Week 4 Feb 14- Feb 20	Central Nervous System (CNS) Trauma	• Watch CNS Trauma Lecture Videos • Take CNS Trauma Lecture Quiz • Read CNS Trauma Research Paper • Write CNS Trauma Journal Entry • Post to CNS Trauma Discussion Board forum 2 times	Due Friday 2/18 11:59pm • CNS Trauma quiz • CNS Trauma Journal Entry • 1st Discussion Board Post Due Sunday 2/20 11:59pm • 2nd Discussion Board Post
Week 5 Feb 21- Feb 27	Alzheimer's Disease (AD)	• Watch Alzheimer's Disease Lecture Videos • Take Alzheimer's Disease Lecture Quiz • Read Alzheimer's Disease Research Paper • Write AD Journal Entry • Post to AD Discussion Board forum 2 times	Due Friday 2/25 11:59pm • Alzheimer's Disease Quiz • AD Journal Entry • 1st Discussion Board Post Due Sunday 2/27 11:59pm • 2nd Discussion Board Post

Week 6 Feb 28- Mar 6	Huntington's Disease (HD)	• Watch Huntington's Disease Lecture videos • Take Huntington's Disease Lecture Quiz • Read Huntington's Disease Research Paper • Write HD Journal Entry • Post to HD Discussion Board forum 2 times	Due Friday 3/4 11:59pm • Huntington's Disease Quiz • HD Journal Entry • 1st Discussion Board Post Due Sunday 3/6 11:59pm • 2nd Discussion Board Post
Week 7 Mar 7- Mar 13	Writing a News Article	• Watch News Article Lecture • Take the News Article Lecture Quiz • Submit *Reading the News* Assignment • Access your Critique Group site within Blackboard • Post to your Critique Group's "Introductions" Discussion Board forum • Write and Submit News Article Draft to your Critique Group's file exchange	Due Friday 3/11 11:59pm • News Article Lecture Quiz • *Reading the News* Assignment Due Sunday 3/13 11:59pm Within your Critique Group site: • Introduction Discussion Board Post • News Article (Draft)- submit to group file exchange
Week 8 Mar 14- Mar 20	Spring Break	Spring Break	Nothing is Due!!
Week 9 Mar 21- Mar 27	News Article Critique	• Read and complete a Peer Critique for each of your group member's News Article Drafts • Edit and submit your final News Article	Due Wednesday 3/23 11:59pm • Peer Critiques for each group member's news article draft- submit to group file exchange Due Sunday 3/27 11:59pm • News Article (Final)
Week 10 Mar 28 – Apr 3	Autism Spectrum Disorder (ASD)	• Watch Autism Spectrum Disorder Lecture videos • Take Autism Spectrum Disorder Lecture Quiz • Read Autism Spectrum Disorder Research Paper • Write ASD Journal Entry • Post to ASD Discussion Board forum 2 times	Due Friday 4/1 11:59pm • Autism Spectrum Disorder Quiz • ASD Journal Entry • 1st Discussion Board Post Due Sunday 4/3 11:59pm 2nd Discussion Board Post
Week 11 Apr 4 – Apr 10	Multiple Sclerosis (MS)	• Watch Multiple Sclerosis Lecture Videos • Take Multiple Sclerosis Lecture Quiz • Read Multiple Sclerosis Research Paper • Write MS Journal Entry	Due Friday 4/8 11:59pm • Multiple Sclerosis Lecture Quiz • MS Journal Entry • 1st Discussion Board Post

		• Post to MS Discussion Board forum 2 times	Due Sunday 4/10 11:59pm • 2nd Discussion Board • Post
Week 12 Apr 11 – Apr 17	Writing a Grant	• Watch Grant Writing Lecture • Take Grant Writing Lecture Quiz • Read Grant assignment sheet and watch video explanation • Review student Grant examples • Write and submit Specific Aims Draft to your Critique Group's file exchange AND the assignment link	Due Friday 4/15 11:59pm • Grant Writing Lecture Quiz Due Sunday 4/17 11:59pm • Specific Aims Draft **(submit to assignment link AND to group file exchange)**
Week 13 Apr 18 – Apr 24	Prions	• Watch Prions Lecture Videos • Take Prions Lecture Quiz • Read Prions Research Paper • Write Prions Journal Entry • Post to the Prions Discussion Board forum 2 times • **Sign up for Week 14 Individual Meeting with instructor** • **Read and complete a Peer Critique for each group member's Specific Aims Draft**	Due Friday 4/22 11:59pm • Prions Lecture Quiz • Prions Journal Entry • 1st Discussion Board Post Due Sunday 4/24 11:59pm • 2nd Discussion Board Post • **2 Specific Aims Draft Peer Critiques- submit to group file exchange** • **Sign up for your Week 14 individual meeting with Dr. Lewis**
Week 14 Apr 25 – May 1	Glioma & Individual Meetings	• Watch Glioma Lecture Videos • Take Glioma Lecture Quiz • Read Glioma Research Paper • Write Glioma Journal Entry • Post to the Glioma Discussion Board forum 2 times • Individual Meetings with Dr. Lewis to discuss your Specific Aims Draft (prepare and attend)	Due Friday 4/29 11:59pm • Glioma Lecture Quiz • Glioma Journal Entry • 1st Discussion Board Post Due Sunday 5/1 11:59pm • 2nd Discussion Board Post • Attend Individual Meeting
Week 15 May 2- May 8	Research Presentations & Grant Submission	• Record and Submit Research Paper Presentation (if haven't already) • Finish and submit your Grant assignment	Due Friday 5/6 11:59pm Research Paper Presentation Due Tuesday 5/10 11:59pm Grant

NOTE: This schedule is subject to change at any time. **You are responsible for all announcements and syllabus modifications posted to Blackboard. Check your Mason e-mail and Blackboard announcements daily.**