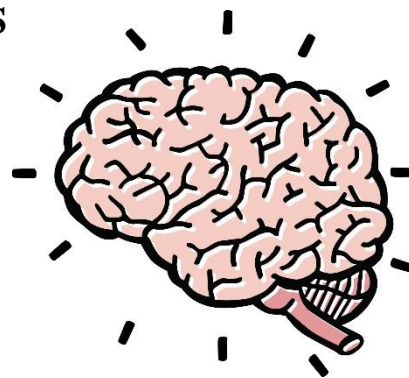


**NEURODEGENERATIVE DISEASES**  
**Biology 490 Senior Seminar, Section 4**  
**Fall 2021**



**Instructor Information:**

Dr. Jennifer Bray  
Office: CBB 311  
Email: [jbray@uwsp.edu](mailto:jbray@uwsp.edu)

Office Hours: By appointment ☺ I will meet with each student one-on-one to discuss your articles and PowerPoint slides the week before your oral presentation. We can set up these appointments by email or following class.

**Course Information:**

Tuesday and Thursday 10:00 – 10:50 a.m. in CBB 135.

**Course Description and Objectives:**

This seminar course will broadly examine recent research advances in neurodegenerative diseases and pathology as well as the advantages/disadvantages of using of transgenic animal models and other animal models (i.e. drosophila, zebrafish) to study neurodegenerative diseases. **The main goal of this seminar is to contribute to your general professional development by improving your ability to communicate in the Biology or Biochemistry major in both oral and written formats.** Students will lead the presentation and discussion of a primary literature article related to a neurodegenerative disease of their choice. In addition, a literature review paper on the disease will be required. You will gain experience in the areas of literature search, scientific format, and preparation of an oral presentation. **Class attendance and participation is required.**

This course fulfills the **Capstone Experience in the Biology and Biochemistry Majors**. The learning outcome goals are as follows:

1. Complete a project that integrates knowledge, skills, and experiences related to the discipline.
2. Demonstrate skills, processes, and resources needed to make a successful transition from college to the world beyond.

Additionally, this course fulfills the Communication requirements in the **Biology and Biochemistry Majors**. The learning outcome goals are as follows:

1. Apply discipline-specific standards of oral and written communication to compose an articulate, grammatically correct, and organized presentation/piece of writing with properly documented and supported ideas, evidence, and information suitable to the topic, purpose, and audience.
2. Critique their own and others' writing/oral presentations to provide effective and useful feedback to improve their communication.

### **Course Grading:**

The format of the course will include three major components: a student presentation, a written report, and attendance/class participation. The student presentations will be worth 50 points, the written report will be worth a total of 75 points, and student participation/attendance will be worth an additional 60 points.

Attendance at all scheduled classes is required to succeed in this seminar. **For your first unexcused absence, 3 points will be deducted from your participation points. For each additional unexcused absence, 5 points will be deducted from your participation points.** If you have a documented health emergency, a family emergency, or have tested positive for COVID and need to quarantine, please contact me regarding your absence and I will be as accommodating as possible. If you have a prearranged excused absence, such as a UWSP sponsored event, graduate school interview, or a research conference, etc., I must be informed well before class when possible and receive documentation of your absence.

### **Grade Scale:**

|              |              |
|--------------|--------------|
| A ≥ 93-100   | C = 73-76.9  |
| A- = 90-92.9 | C- = 70-72.9 |
| B+ = 87-89.9 | D+ = 67-69.9 |
| B = 83-86.9  | D = 60-66.9  |
| B- = 80-82.9 | F < 60.0     |
| C+ = 77-79.9 |              |

### **Student Oral Presentations:**

Each student will be required to give a 40-45 minute presentation and **lead the discussion** on a chosen neurodegenerative disease and a recent primary literature article investigating one aspect of the disease. Discussion leaders will be expected to provide relevant background material, a summary of the studies, and a critical evaluation of the research. Searching for appropriate literature articles and reviews will require the use of online index searches and interlibrary loan, so please plan ahead. If you are having troubles using the online indexes, please email me or a librarian for assistance. Individual presenters will be asked to **turn in a handout** of your presentation to the instructor on the day of their presentation. Do not forget to do this! Otherwise, you will lose points.

Oral presentations will be graded by the instructor and will be graded on content, format, and overall knowledge of the subject matter. Participation by the audience is necessary to promote discussion and understanding of the topics being presented. Therefore, when you are not leading the discussion, you will be evaluated on your level of participation. Please read through the selected article or articles, which will be posted in canvas the week before the presentation. **You are to provide at least five discussion questions for the papers you were assigned.** Questions (which should be typed) must be informed and indicate to me that you read, comprehended, and contemplated the readings. Bring two copies of your questions to class; one will be handed in to me, the other you will use to aid in your discussion of the readings. **Questions must be handed in at the beginning of class to receive credit!**

## **Writing Assignment:**

Each student will complete a term paper that will be evaluated in three phases. The first form of review will be peer evaluations of your paper (10 pts). If your paper is not complete on the date of peer evaluations, you will lose points. The first draft of your paper is worth 25 points and the final draft is worth 40 points. The paper should be 8 – 10 pages long (double spaced, 1 inch margins).

The paper should include a description of the neurological disorder you chose and a brief history of the study of it. It should include a description of the gene or genes that are mutated and result in the disease (e.g., when discovered, proteins coded for, functions of those proteins, what may activate or suppress the genes, what the mutation causes, etc.). Discuss what is not known and why the authors studied what they did. Include a review of the original research article you presented that relates to the disorder; summarize the paper (the methodology, the results, and the conclusions drawn). Also include considerations of future directions for research regarding this topic, which may come from questions you have or ones that are posed by the authors of the manuscripts selected.

Please include a works cited page that cites the **journal articles and books** that you use for the paper (use MLA citation format below). I am asking you to write a scientific review article, thus websites are not appropriate resources for this type of paper. Therefore, no internet resources (including Wikipedia) should be included in your bibliography. You are required to include a minimum of 6 references in addition to the primary journal article that you are reviewing. So, a total of 7 or more references should be listed. One of these articles should be obtained through interlibrary loan (\*please asterisk this article on your works cited page).

Bray, Jennifer G., et al. “Transgenic Mice with Increased Astrocyte Expression of ccl2 Show Altered Behavioral Effects of Alcohol.” *Neuroscience*, vol. 354, 2017, pp. 88–100., doi:10.1016/j.neuroscience.2017.04.009.

Grading rubrics for the oral presentations and writing assignment will be posted on Canvas and will be provided in separate handouts.

\*Extra credit: You can earn 1 additional point for each completed official consultation with the UWSP Writing Center ([https://www.uwsp.edu/tlc/Pages/Online-Writing-Lab-\(OWL\).aspx](https://www.uwsp.edu/tlc/Pages/Online-Writing-Lab-(OWL).aspx)). To get your extra credit point, cc me (jbray@uwsp.edu) when you send your document to a Writing Lab Consultant (tlctutor@uwsp.edu).

## **Hints for Presenters:**

Critical reading of primary literature is not an easy thing to master, and the only way to get good at it is to do it often. It is a skill that many of you will carry onto your professional careers. If you go onto graduate school, you may find yourself in a journal club with faculty and other graduate students doing exactly what we are doing in this seminar, reading and discussing current research. In graduate school, medical school, PA school, and several other professional careers, you will be expected to keep up to date on current research in your area of expertise. You will be expected to identify how these studies fit into your research, what the strengths and weaknesses of the study are, and how you might even improve or add to the study.

The most challenging part of reading primary literature is identifying the important points in the paper. As a presenter, it is your task to summarize the paper and prioritize what should be discussed. Below is a rough sketch of how to go about this, but every paper is different, so you will want to keep an open mind.

Summarizing the article can be approached by asking the following questions:

1. *What questions (hypotheses) are being asked in the paper? What is the paper about? Why did they do the work?* This information is typically found in the introduction.
2. *How did the authors go about answering these questions? What was the experimental design?* This is found in the methods section.
3. *What were the findings of the paper? What are the broader implications of this research?* This information is found in the results and discussion section.

You should assume that all other students have read the paper and have a copy of the paper in front of them. They should have notes and questions they have regarding the paper. However, if a lull in the discussion occurs you can ask the audience broad topic questions such as:

- Was the methodology appropriate for the questions being asked?
- How could the experimental design be improved?
- Did the conclusions follow from the data clearly? Could other conclusions be drawn from the data that the authors did not mention? Or did they draw too big of a conclusion from their data?

**SCHEDULE:**

|                           |                                                                                                        |
|---------------------------|--------------------------------------------------------------------------------------------------------|
| September 2 <sup>nd</sup> | Syllabus and Overview of Course                                                                        |
| 7                         | Introduction into Neurodegenerative Diseases                                                           |
| 9                         | <b>Pick diseases and dates for presentation</b><br>How to Read and Review a Scientific Journal Article |
| 14                        | Seminar Presentation Hints and use of PowerPoints                                                      |
| 16                        | How to Search for Research Articles<br>Meet in LB 316 Computer Lab                                     |
| 21                        | Meet in LB 316 – Hands on Search in Library                                                            |
| 23                        | Class Discussion of a Journal Article<br>Discuss 1 page article review, what should you include?       |
| 28                        | Continue Class Discussion / Start Presenting Figures                                                   |
| 30                        | Continue Presenting Figures from Discussion<br><b>* 1 page article review due (5 pts)</b>              |
| October 5 <sup>th</sup>   | Student Presentation                                                                                   |
| 7                         | Student Presentation                                                                                   |
| 12                        | Student Presentation                                                                                   |
| 14                        | Student Presentation                                                                                   |
| 19                        | Student Presentation                                                                                   |
| 21                        | <b>*ROUGH DRAFT of Paper Due:<br/>in class PEER EVALS (10 pts)</b>                                     |
| 26                        | Student Presentation                                                                                   |
| 28                        | Student Presentation<br><b>* FIRST DRAFTS of PAPER DUE (25 pts)</b>                                    |
| November 2 <sup>nd</sup>  | Student Presentation                                                                                   |
| 4                         | Student Presentation                                                                                   |
| 9                         | Student Presentation                                                                                   |
| 11                        | Student Presentation                                                                                   |
| 16                        | Student Presentation                                                                                   |
| 18                        | Student Presentation                                                                                   |
| 23                        | Student Presentation                                                                                   |
| 25                        | THANKSGIVING ☺                                                                                         |
| 30                        | Student Presentation                                                                                   |
| December 2 <sup>nd</sup>  | Student Presentation Make-up if needed                                                                 |
| 7                         | Presentation Make-up if needed / TED talk<br><b>*FINAL DRAFT of PAPER DUE (40 pts)</b>                 |
| 9                         | Overview of Semester / Assessment                                                                      |

In compliance with the Americans with Disabilities Act, I will make every effort to honor requests for reasonable accommodations made by individuals with disabilities. If you have a disability and require accommodations, please register with the Disability and Assistive Technology Center (6th floor in Albertson Hall (ALB), call 715-346-3365, or email [datctr@uwsp.edu](mailto:datctr@uwsp.edu)) and let me know as soon as possible. Requests for accommodation can be responded to most effectively if I receive the requests early in the semester. Such requests are confidential. For more information about UWSP's policies with respect to the Americans with Disabilities Act (ADA), check here:

<https://www.uwsp.edu/hr/Pages/Affirmative%20Action/ADA.aspx>. You can also find more information on services provided at: <https://www.uwsp.edu/datc/Pages/default.aspx>

**UWSP Community Bill of Rights and Responsibilities:** UWSP values a safe, honest, respectful, and inviting learning environment. A set of expectations for students and instructors, known as the Rights and Responsibilities document, is intended to help establish a positive living and learning environment. For more information go to

[https://www.uwsp.edu/dos/Documents/2015\\_Aug\\_Community%20Rights%20and%20Responsibilities%20Web.pdf](https://www.uwsp.edu/dos/Documents/2015_Aug_Community%20Rights%20and%20Responsibilities%20Web.pdf)

Academic integrity is central to the mission of higher education in general and UWSP in particular. Academic dishonesty (cheating, plagiarism, etc.) is taken very seriously and will likely result in a failure (zero) for the assignment. For more information, see the UWSP “Student Academic Standards and Disciplinary Procedures” section of the Rights and Responsibilities document, Chapter 14, at the following site:

**Title IX:** Under several federal and state laws and according to several university guidelines, I am required to report acts of a criminal or offensive nature. This includes acts of sexual harassment and assault, bias and hate crimes, illicit drug use, and acts of violence. Any disclosure or description of these incidents – both current and in the past – may be reported to the Dean of Students office (<http://www.uwsp.edu/dos/>) or the local authorities.

**Face Coverings:** At all UW-Stevens Point campus locations, the wearing of face coverings is mandatory in all buildings, including classrooms, laboratories, and other instructional spaces. Any student with a condition that impacts their use of a face covering should contact the [Disability and Assistive Technology Center](#) to discuss accommodations in classes. **Please note that unless everyone is wearing a face covering, in-person classes cannot take place.** This is university policy and not up to the discretion of individual instructors. Failure to adhere to this requirement could result in formal withdrawal from the course.

**Other Guidance:** Please monitor your own health each day using [this screening tool](#). If you are not feeling well or believe you have been exposed to COVID-19, do not come to class; email your instructor and contact Student Health Service (715-346-4646). As with any type of absence, students are expected to communicate their need to be absent and complete the course requirements as outlined in the syllabus.