

PULSE EXPERIENTIAL TEAM ASSIGNMENT

Team #: 32

1. Title of your PULSE experiential assignment.

Provide a creative and informative title.

Behind the Sheath: Shining a Spotlight on Multiple Sclerosis

2. Please summarize your PULSE experiential assignment (max 300 words).

Provide a non-technical (lay) summary of your PULSE assignment. Prompts to think about: What is the topic? What is the format? Why did you choose this topic and format? The summary for lay audience is a brief and accessible summary of the assignment that is used to explain complex ideas, technical writing and scientific terms to people who do not have prior knowledge of the subject (e.g., high school science level). This summary should include the importance, impact, and content of your assignment to a broader audience.

[Team 23 is an example of an informative lay summary.]

Our assignment explores Multiple Sclerosis (MS), a chronic autoimmune disease of the central nervous system (CNS) where the immune system mistakenly attacks the myelin sheath, disrupting nerve signal transmission. The pathogenesis of MS involves genetic predispositions and environmental triggers including Epstein-Barr Virus (EBV), vitamin deficiencies, and smoking. These factors contribute to immune cell over-activation, leading to inflammation, demyelination, and eventually neuronal dysfunction.

MS presents in different clinical forms: clinically isolated syndrome (CIS), relapsing-remitting MS (RRMS), secondary progressive MS (SPMS), and primary progressive MS (PPMS). Symptoms vary from visual disturbances and fatigue to mobility issues to cognitive impairments. Diagnosis often involves MRI scans and biomarkers like oligoclonal bands and neurofilament light chain (NfL).

The prognosis of MS depends on several factors such as age of onset, symptom type, lesion location, sex, and disease subtype. While some individuals experience mild symptoms and long periods of remission, others face rapid progression and disability. Biomarkers, lesion burden, and tools like the Expanded Disability Status Scale (EDSS) help monitor disease progression.

Treatment focuses on immunosuppressive and disease-modifying therapies (DMTs) including ocrelizumab, fingolimod, teriflunomide, and alemtuzumab. However, these treatments carry risks of opportunistic infections such as tuberculosis, herpes viruses, and hepatitis B. Nutritional strategies and lifestyle modifications are also emphasized to support long-term wellness.

Our magazine-style project, *Behind the Sheath*, aims to present complex scientific content in a visually engaging and accessible way. It includes detailed information on MS etiology, pathogenesis, symptoms, risk factors, treatments, prognosis, and patient perspectives. Paired with interactive activities and special features, like a Celebrity Spotlight, we hope readers find out content engaging and that this resource fosters

awareness, empathy, and a better understanding of MS.
3. Provide up to 6 keywords relevant to your PULSE experiential assignment. <i>3-6 keywords are ideal.</i>
<p>Multiple Sclerosis</p> <p>Neuropathology</p> <p>Demyelination</p> <p>Autoimmune</p> <p>Degenerative</p>
4. Identify the course topic with which your PULSE assignment most aligns. <i>Refer to the various topics outlined under 'Course content and Schedule' in the syllabus (e.g. Inflammation).</i>
<ul style="list-style-type: none"> • Diseases of the Central Nervous System
5. What are the learning outcomes? <i>There should be a minimum of 2 learning outcomes for your assignments. For further information on learning outcomes, the Centre for Teaching and Learning offers information: https://teaching.uwo.ca/curriculum/coursedesign/learning-outcomes.html</i>
<ul style="list-style-type: none"> • Demonstrate knowledge of gross and microscopic nervous system anatomy • Describe abilities and limitations of the CNS to regenerate • Describe the clinical and pathological findings in multiple sclerosis, and discuss its pathogenesis.
6. Why did the team select the chosen topic and the medium? How will the topic and medium of choice help learners?
<p>Through group discussion, we discovered a shared passion for neurology and problem-solving, which led us to pursue the syllabus and select a topic that would reflect our mutual interests. We saw 5 lectures of neuropathology on the schedule, and searched through Google Scholar articles to determine a few possible diseases we could focus on. From there, we used an online random selection tool to pick multiple sclerosis.</p>
7. Did the team use an artificial intelligence (AI) technology tool? If so, which AI technology tool(s) did the team use? What other technology tools did the team use? Is the technology tool novel? Is the team using this technology tool in a novel fashion? If the team did not use technology tool, why did the team decide against using the technology tool(s)? <i>Please include details (e.g., for what purpose was the tool used for? Why was the tool the best tool to use for your assignment? Are there alternative tools that were considered?)</i>
<p>This was the best tool for our assignment because it helped overcome our creative block with choosing our name.</p> <p>We also used the most recent version of ChatGPT to create our own personal GPT</p>

based on information from our magazine. The GPT provides multiple choice questions and provides explanations on the answers as well as why each of the selections was wrong or right. This was inspired by Dr. Matthew Cecchini, who created a similar tool for us to study while he taught us about neoplasia.

This was the best tool for this task because we already checked the validity of our information and ChatGPT is an excellent tool for reorganizing information. Using AI saved us a lot of time. This is also an example of how students who are learning about Multiple Sclerosis can use AI to aid them in their studying. By adding this resource, readers are able to review the material and check their understanding.

8. How is your PULSE experiential assignment innovative and/or novel?

Describe what about the PULSE assignment is innovative/novel. Is there a particular component or content that is innovative/novel? How is it different from other content that already exists?

Our assignment is novel and innovative in both its content and fresh perspective on Multiple Sclerosis. We were able to take a complex neurodegenerative disease and present the information in the style of a health and wellness magazine, a format that is both accessible and visually appealing to a broad audience. This creative approach sets our project apart from more conventional lecture-based or text-heavy materials typically used in pathology education. Specifically, we included segments such as infographics, myth-busting segments, and quizzes.

9. If you used an AI tool, please copy and paste the prompt(s)/question(s) used along with the output(s)/answer(s) from the AI tool.

The response here is to allow others to replicate the team's work. If the prompts/outputs are lengthy (over 1 page), please attach it as a separate document and note below [Please see attached document].

The screenshot displays a ChatGPT conversation. The first prompt is "make a magazine title on the topic of multiple sclerosis", resulting in the output "MS Frontiers: Exploring the Science, Treatments, and Future of Multiple Sclerosis". The second prompt is "make something specific for ms", which generates a list of 14 topics. The third prompt is "can you make flashcards based on these sections:", followed by a list of 15 topics related to Multiple Sclerosis. The output shows a PDF document titled "Multiple Sclerosis - Behind the Sheath...." with a list of topics: ETIOLOGY, Prognosis, Understanding the Disease, By the Numbers, Pathogenesis, Cellular Events Leading to Demyelination, Demyelination Step-by-Step, Demyelination: What is Does, Prognosis, Patient Perspective, Complications, Treatment, Medications used for MS Therapy, Risks of Opportunistic Infections, and Options and Targets.

make a magazine title on the topic of multiple sclerosis

MS Frontiers: Exploring the Science, Treatments, and Future of Multiple Sclerosis

make something specific for ms

1. MS Unraveled: Decoding Multiple Sclerosis
2. The MS Chronicle: Science, Treatment & Hope
3. Beyond Myelin: Advances in MS Research
4. MS Breakthroughs: The Future of Treatment & Care
5. NeuroDefend: Fighting Multiple Sclerosis
6. MS Perspectives: Voices from Science & Patients
7. The Myelin Report: Tracking MS Progression & Recovery
8. MS Frontiers: Innovation in Research & Therapy
9. The MS Journey: From Diagnosis to Discovery
10. MS Mindset: Understanding, Managing & Thriving
11. NeuroResilience: Living with MS & Beyond
12. MS Matters: Science, Support & Solutions
13. MS Spectrum: A Comprehensive Look at Multi-Phase Sclerosis
14. Rewiring MS: Exploring Treatment & Remyelination

provide more

1. MS Unraveled: Breaking Down the Science & Hope for the Future
2. Beyond Myelin: The Journey of Multiple Sclerosis Research & Care
3. MS Today: Advances, Challenges, and Living Well
4. NeuroInsight: Innovations in Multiple Sclerosis Treatment
5. The MS Chronicle: Stories, Science, and Solutions
6. Shifting Gears: Understanding and Managing Multiple Sclerosis
7. MS Breakthroughs: The Science, The Struggle, The Strength
8. NeuroEdge: Cutting-Edge MS Research & Therapies
9. The Myelin Report: Updates on MS Science & Treatment
10. MS Resilience: Thriving Beyond Diagnosis

Multiple Sclerosis - Behind the Sheath.... PDF

can you make flashcards based on these sections:

- ETIOLOGY
- Prognosis
- Understanding the Disease
- By the Numbers
- Pathogenesis
- Cellular Events Leading to Demyelination
- Demyelination Step-by-Step
- Demyelination: What is Does
- Prognosis
- Patient Perspective
- Complications
- Treatment
- Medications used for MS Therapy
- Risks of Opportunistic Infections
- Options and Targets

10. If you did not use an AI tool, please attach a copy of the team's notes to the assignment.

The response here is to allow others to observe the 'behind the scenes' team's work.

11. How did the team ensure the veracity of the information presented in the PULSE assignment?

The response should highlight how the team has ensured that the information presented in the assignment is evidence-based and not spreading misinformation. You should specifically mention which databases (if any) or textbook materials you used, and how you kept track of the sources/references for each claim. If AI provided you with false information, please describe how the team has fact-checked the AI response and the legitimate (scientific) sources you used. A reference document should be provided in the reference section (15. References) below. Please ensure to include in-text citations in your assignment where applicable.

To ensure the veracity of the information in our assignment, we made sure all of our sources were found through google scholar so that they would be primary or secondary sources. The information we researched was primarily derived from the PubMed database.

12. Write a meaningful team reflection about the PULSE session (max 250 words).

Prompts to help your team write the reflection: Were there any team/individual biases that surfaced when creating content for the assignment? Did the team implement any practices to ensure the content was equitable, diverse, and/or inclusive? How has the PULSE assignment helped with the team's learning? If the team had to estimate, how long did the assignment take? What worked well for your team? What would the team do differently next time? What were the opportunities and challenges with creating the PULSE assignment to help others' learning? Were there any barriers or limitations?

Reflection:

Creating our *PULSE* magazine on Multiple Sclerosis (MS) was a valuable and collaborative learning experience. One of our initial challenges was recognizing and addressing unintentional biases, such as assuming that the average reader would have a background in biology or access to high-quality care. To promote equity and inclusivity, we made a conscious effort to present our content in a way that was understandable to readers of all backgrounds. We included features such as: *Celebrity Spotlight*, *Wellness* and *Patient Perspective* to provide real-world examples that made such a daunting disease more understandable, and highlight how MS affects people across different walks of life.

As a team, we aimed to balance scientific depth with accessibility by using plain language, visual diagrams, and lived-experience perspectives. We estimate the assignment took approximately 25-30 hours collectively, with individual contributions to writing, editing, graphic design, and research.

What worked well was our clear division of tasks and consistent communication. Google Docs and shared templates that we could each edit in real time helped us stay organized and work off of one another. One challenge we faced was condensing complex scientific mechanisms into engaging, simplified explanations without losing accuracy. Next time, we would begin drafting earlier to allow more time for peer feedback and layout design.

Overall, this assignment deepened our understanding of MS and helped us develop science communication skills that will be essential in future healthcare roles. It also reminded us of the importance of empathy and clarity when educating others about health conditions.

13. Write the contributions of individual team members using unique initials.

Example: All team members contributed to the design of the prompts used in the technology tool, ChatGPT (GPT-3.5). T.K and T.K2 fact checked the information presented by ChatGPT using published literature on PubMed (PMID 29211319, 32477271). Y.Z finalized and formatted the final infographic and compiled the prompts and outputs. P.E was involved in...

Design: All members

Etiology: SG

Celebrity Spotlight: SG

Pathogenesis: YK

Wellness: YK

Prognosis/Treatment: DK2

Complications: DK

Mythbusters: SG

Quiz: DK2

Recap: DK2

Final Formatting: All members

14. References

Please provide a numbered reference list with Nature citation style. [Please feel free to use citation management software (i.e., citation manager; e.g., Zotero and Mendeley)]

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