BIOL3120 – literature review

**Due date:** 5pm, **3**rd June 2021 (5pm Friday, Week 13) **Assessment value:** 25%

**Aim**

Your aim is to review the **use** of a particular **molecular technique** for the diagnosis OR treatment of a **specific** human disease.

To address this aim you will select a modern molecular technique and write a literature review on how that technique can be applied to diagnose OR treat a specific human disease. We have provided a list of potential molecular techniques for you to choose from below. You will need to find a specific use of this technique on your own from the scientific literature.

In the review you should:

1. Introduce us to the specific human disease, and the need for tools that can diagnose or treat the condition.
2. Describe the molecular technique, with an explanation of how it works. Explain how the technique can be used to understand the human disease.
3. Briefly discuss the alternative strategies for disease diagnosis/treatment.
4. Compare and contrast your molecular techniques with the alternatives.
5. Describe the conclusions that can be drawn from your review.

**Wordcount**

The review should be no more than 2500 words . The wordcount does not include the title, author name, affiliation, bibliography, or the contents of figures, figure legends, and tables. ***Words in excess of the wordcount will not be marked.***

**Submit it as PDF document to TurnItIn**

**Bibliography**

The review should contain a complete well referenced bibliography using the Harvard or other academic referencing style.

**Academic Integrity**

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| **Do’s** | **Don’ts** |
| Create your own independent work | Outsource the assessment |
| Search the relevant literature and paraphrase those works | Search the literature and copy those works |
| Have a friend or family proofread your assessment | Have someone write chunks of text for you |
| Submit early to TurnItIn, interpret your similarity report and fix any issues | Try to game the system by aiming to achieve a certain similarity score -this isn’t what we judge |
| Use MQ sources to help you with academic writing | Use outside websites which claim to ‘help you with academic writing’ -often scams |

**Suggested Molecular Techniques**

Circulating tumor DNA (ctDNA)

Cell free fetal DNA (cffDNA)

GWAS

CRISPR/Cas9

TALENs

Microbiome analysis

Whole genome sequencing

Exome sequencing

Specific gene therapy technique e.g. AAVs or nanoparticles

If you would like to write about an alternative molecular method, please get prior approval from one of the course convenors.

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| --- | --- | --- | --- | --- | --- | --- |
|  | Brief guidelines | Outstanding | Advanced | Proficient | Functional | Developing |
| Title  (5 marks) | Provide a succinct title with sufficient detail for the audience to understand the content of the review | Clear succinct title, with important message included | Title includes key take away message from the review | Title sufficient to understand the review | Title introduces general topic | Title is missing or does not include relevant details |
| Introduction  (15 marks) | Provide an introduction to medical condition of interest, and introduce the technological tool required for either treatment or diagnosis | Succinctly introduces the topic of the paper. With enough detail (and no more) for the audience to understand the need to review methods of diagnosis/treatment for specific condition. Information is excellently backed up by reference to the primary literature. Clear statement of aim of review. | Introduces the medical condition and the need for diagnosis/treatment options. Introduces the purpose of review with specific aims. Information is backed up by reference to the primary literature. | Introduces the medical condition and the need for diagnosis/treatment options. Introduces the purpose of review. Information is backed up by reference to the primary literature with some expansion needed. | Introduces the topic but lacks important details or includes excessive additional unrelated information. Information is not backed up by reference to the primary literature. | Fails to adequately introduce the topic of the paper. Information is not backed up by reference to the primary literature. |
| Description of molecular method and application to disease setting  (15 marks) | Describe the chosen technology and how it works, supported by the literature. Explain how it can be used to diagnose or treat a specific human disease.  Use diagrams where necessary to explain the approach. | Demonstrates a clear understanding of the proposed method. Gives a well justified explanation of how it could be applied to the diagnosis/treatment of a specific disease. | Demonstrates a clear understanding of the proposed method and how it can be applied to the diagnosis/treatment of a specific disease. | Clearly explains the method and how it can be applied to the specific disease setting. | Explains how the method can be used to manage diseases. | Limited understanding of the proposed method and how it can be used to diagnose, treat, or manage a specific disease. |
| Describes alternative strategies for disease diagnosis/treatment  (10 marks) | Provide a description of the existing alternative strategies the diagnosis or treatment of the chosen disease. | Succinctly introduces and describes alternative approaches to disease diagnosis/treatment. | Introduces and describes alternative approaches to disease diagnosis/treatment. | Describes 1 or more alternatives for disease diagnosis/treatment. | Lists alternatives for disease diagnosis/treatment. | No description of alternative strategies for the specific problem. |
| Compare & contrast your method with alternatives and overall limitations of current approaches to diagnosis/treatment.  (40 marks) | Using reference to the primary literature, compare and contrast your method with alternatives used in the field. | Provides a well justified comparison between the chosen method and existing alternatives. Details current limitations of the available approaches, with some vision to the future.  Includes informative figure or flowchart of comparison. | Provides a well justified comparison between the chosen method and existing alternatives. Details current limitations of the available approaches. | Clearly and accurately describes benefits and limitations of the chosen method relative to mentioned alternatives. | Describes benefits or limitations of the chosen method relative to mentioned alternatives. | No comparison made between the selected technique and alternatives. |
| Conclusion  (5 marks) | Describe the conclusions that can be drawn from your review. | Well justified conclusion, that builds from the arguments made in the body of the review. | Clear conclusions that build from arguments made in the body of the review. | Clear conclusions made about the use of the proposed technology for the intended purpose. | Clear conclusions stated. | No conclusions. |
| Bibliography  (5 marks) | Provide a consistent bibliography using the Harvard or other academic style. | References have complete consistency with referencing style | Minor inconsistencies in referencing style | Several inconsistencies in referencing style | Many inconsistencies in referencing style | Non-standard or no referencing |
| Style: grammar, spelling, structure  (5 marks) | Write your article in a formal academic style. | Excellent paragraph structure, sentence structure, and word usage. Includes subheadings. | No errors in sentence structure, word usage, punctuation, and spelling. | Minor errors in sentence structure, word usage, punctuation, and spelling. | Many errors in sentence structure, word usage, punctuation, and spelling. | Errors in sentence structure, word usage, punctuation, and spelling make it difficult to understand the content. |

The review should have a wordcount of 1500 - 2500words. The wordcount does not include the title, author name, affiliation, bibliography, or the contents of figures, figure legends, and tables. ***Words in excess of the wordcount will not be marked***

This template can be used for the BIOL3120 literature review

Student X,

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# Introduction

* Begin the introduction with a statement of the big picture problem this review is trying to address.
* Include paragraphs that guide the reader to the specific topic that you will introduce in the last paragraph of the introduction.
* Finish the introduction with a clear statement of what the review will cover. E.g. “In this review, I describe the emerging technology abc and how it can be used to diagnose/treat/manage condition xyz. I \_\_\_\_\_\_\_ this technology with….., which shows us…. These comparison allows me to conclude…”

# Include a meaningful heading that tells the reader what you are going to describe and explain about the technology

* Describe the technology and explain how it can be used to diagnose/treat/manage a specific condition. Use diagrams and images where necessary. But remember to cite other peoples work.

# Include a meaningful heading that tells the reader what you are going to compare and contrast about your technology

* Compare and contrast your technology with others that have been used in this field currently or in the past. Use references where necessary to justify your comparison.
* Include diagrams, flowcharts, or tables where necessary to allow the reader to better understand your comparisons and sell your takeaway message.
* Include details of the limitations of your method and the approaches available currently
* Use subheadings where necessary to break up your review.

# Conclusions

* Make clear conclusions about the use of your technology for the specific illness or disease.
* What does your review add to the field?

# References

* You should have sufficient references to justify all arguments made in the article.
* Use the Harvard referencing style to complete your bibliography.
* Make a targeted effort to make sure your referencing style is consistent between all references.