



FIGHTING DRUG-RESISTANT MALARIA



9 Composing the Final Proposal

Rubric: Conclusion: Considering Trade-Offs

Needs Improvement	Developing	Proficient	Excels
Two or more of the following need attention: design priorities; summary of trade-offs in the optimal design; or a closing statement	One of the following needs attention: design priorities; summary of trade-offs in the optimal design; or a closing statement	Includes all of the following, but may lack detail: design priorities; summary of trade-offs in the optimal design; and a closing statement	Description of design priorities is clear; summary of trade-offs in the optimal design is detailed and thorough; includes a strong closing statement

Rubric: Introduction and Design Claim

	Needs Improvement	Developing	Proficient	Excels
Introduction	Introduction is incomplete; missing one or more criteria and no mention of the proposed design	Lists the criteria of the project but does not describe them; mentions the proposed design by listing the results or details but not both	Summarizes the design request and describes most criteria; describes the proposed design by listing the results or details but not both	Thoroughly summarizes the design request and describes all criteria; describes the proposed design by listing the variables or details and the final results



Read the Daily Message and record notes of important points and deliverables. (5 min)

Connecting to Futura Workspace

Open the [Futura Workspace](#).

1. Select the Natural Selection Engineering Internship from the login page.
2. Read the new Daily Message from your project director.
3. Add to your Daily Message Notes about today's activities and deliverables.

Open and re-pin Daily Message Notes

- Add **today's date** and subject of the message (**Your Final Proposal**) at the top of the note.
- Add (**Copy/Paste**) summary of deliverables and/or important information under heading.

Your Final Proposal

Hello interns,

Today is all about the beginning and the end of your proposal. Your internship coordinator will help you take the work you have already done—in the Project Summary and Trade-Offs Reflection—and turn it into your Introduction and Conclusion paragraphs. You might also want to refer to the [Dossier](#) for information and resources to help you write.

These two paragraphs are the final parts of your proposal. The introduction shows the reader what you know about the project, while the conclusion shows that you've thought deeply about the trade-offs involved. Remember to use scientific and professional language to communicate your ideas.

Deliverables:

- Final Proposal

Good luck,
Ken

Ken Tapaha, Project Director
Futura | Biomedical Engineering Division



NSEI – 1.9 WRITING THE INTRODUCTION

Interns return to the Project Summary and reflect on and revise its details in order to generate the Proposal Introduction. (15 min)

The introduction of the Final Proposal.

- The introduction of the Final Proposal should explain the project to someone who doesn't know anything about your work at Futura.
- **What information might be important to include in your introductions.**
 - What the project is about;
 - What the criteria are;
 - The details of the proposed design solution.

You already wrote most of this information when you submitted your Project Summaries at the end of the Research phase.

6. Based on your research, describe a strategy you will use when designing a malaria treatment.

500 characters remaining

For the Introduction section, use what you wrote for the Project Summary, along with a final sentence that describes the design.



NSEI – 1.9 WRITING THE INTRODUCTION

Rubric: Introduction and Design Claim

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Read the “Excels” portion of the projected rubric.

- You have had experience with these details during the entire internship. You specifically answered most of these details in the Project Summary form when you described the goal and criteria of the project. Review the project criteria.



NSEI – 1.9 WRITING THE INTRODUCTION

Design Claim:

This malaria treatment used (list drug type, doses, and number of days). The results showed the largest percentage of malaria parasites with high resistance to Drug _____ at _____ %. The side effects were _____, and the cost was _____ for 1000 treatments.

To complete the introduction of the Proposal, you need to tell the audience the details of the design you are proposing.

The last sentence in the Introduction describes the features of your optimal malaria treatment including the final results.

You can see that there are blanks for the design details and results.

Adding these specifics to your introduction serves as a claim statement for your argument that this is your proposed optimal solution.

The rest of your proposal supports this claim.

That's what you already completed with your Design Decisions.



NSEI – 1.9 WRITING THE INTRODUCTION

To Copy and Paste the Project Summary form to your Final Proposal form follow below...

- Open and pin the Project Summary form.
- Open the Final Proposal form.
- Copy sections from the Project Summary and paste it into the Introduction section of the Final Proposal.
- Select SAVE on the Final Proposal.
- Unpin the Project Summary or select the Inbox icon, if desired.

Revise and complete your introductions.

- Revise your introductions, using what you submitted from the Project Summary and by adding the design claim.
- Select SAVE often, but make sure you do not submit your work yet.
- You will complete your conclusion in a few minutes.
- Early finishers can compare your introductions to the Sample Proposal Introduction in the Dossier, or swap devices and peer review a colleague's introduction.



NSEI – 1.9 TRADE OFFS AND CONCLUSION

Reflect on your responses in the Trade-Offs Reflection in order to compose the Proposal Conclusion. (15 min)

The importance of the Final Proposal Conclusion

This conclusion is one last opportunity to convince the reader that you have fully considered all aspects in claiming that this design is optimal.

The conclusion wraps up the entire proposal by demonstrating you understand the trade-offs between the criteria.

It should show you considered many possibilities, and it should include specific examples to help convince the audience that your design is optimal.

Futura isn't looking for the smallest percentage of resistance, or even the lowest treatment costs; instead, they are looking for a proposal with a well-supported argument that shows you know your design is a strong solution to the problem of drug-resistant malaria.



The importance of the Final Proposal Conclusion

You have already done much of the thinking behind this paragraph and can use your responses to the Trade-Offs Reflection form (from Day 6).

Copy and paste your responses from your Trade-Offs Reflection form into the Final Proposal, weaving the responses together to form a coherent paragraph.

You will then write one final summary statement that explains the trade-offs you made in your own personal optimal design.

DAY 6

Trade-Offs Reflection

A trade-off happens in a situation where a design has good results for one criterion but not for another. Look at your optimal malaria treatment. Describe some of the trade-offs you noticed while designing your treatment.

1. Which criterion did you prioritize?

2. Why did you prioritize this criterion?

1000 characters remaining

3. When you prioritized this criterion, what were some of the trade-offs? Describe what happened to the results of the other two criteria.



The importance of the Final Proposal Conclusion

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NSEI – 1.9 TRADE OFFS AND CONCLUSION

Rubric: Conclusion: Considering Trade-Offs.

Explaining the trade-offs made is one final opportunity to demonstrate that the design is an optimal solution.

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What might make the summary of trade-offs clear and detailed?

Adding more than one example of trade-offs; using specific details about results.



NSEI – 1.9 TRADE OFFS AND CONCLUSION

Reflect on and discuss the trade-offs made in your designs

Open your responses to the Trade-Offs Reflection and think back to when you were working on your iterative tests.

- Reread and reflect on whether you identified all the appropriate trade-offs.
- Share and discuss with a colleague for a minute, critiquing if the criterion selected as priority is clear and if the summary of trade-offs in the optimal design is detailed and thorough.
- Share some of the trade-offs you had to make, and what you prioritized as you designed and why.
- Discuss as a group if different designs had similar trade-offs or how prioritizing patient side effects results in different trade-offs compared to a design that prioritized cost.



NSEI – 1.9 TRADE OFFS AND CONCLUSION

Project and discuss the Convincing Conclusions.

When you write the conclusion, you'll want to clearly summarize how you know this is your best design.

In other words you will want to make your reasoning about your choices clear to people who are reading it.

Different proposals will have slightly different trade-offs because of the criterion each prioritized.

Summarize why you believe the project director should choose your design.

- Describe your priorities.
- Describe the trade-offs you considered.
 - Design strategies used
 - Pros and cons of drugs
- Convince the project director why this design is optimal, despite the trade-offs.



NSEI – 1.9 TRADE OFFS AND CONCLUSION

Project and discuss the Convincing Conclusions.

You should explain the reasons for prioritizing one criterion over the others (Second question of the Trade-Offs Reflection).

Detailed descriptions of the trade-offs describe what happened to the other criteria when prioritizing another (The third question of the Trade-Offs Reflection).

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NSEI – 1.9 TRADE OFFS AND CONCLUSION

Project and discuss the Convincing Conclusions.

Strong conclusions might also describe the strategies used during the Design phase when working to achieve a design goal.

In addition, you can utilize the pros and cons of the drugs used in the treatment based on your research with MalariaMed Design Tool, especially data collected during Days 3 and 4.

The final closing statement should convince the reader, the project director, and GHO, that many possibilities have been considered and you have made a well-informed decision in selecting this design for the proposal.

Summarize why you believe the project director should choose your design.

- Describe your priorities.
- Describe the trade-offs you considered.
 - Design strategies used
 - Pros and cons of drugs
- Convince the project director why this design is optimal, despite the trade-offs.



Begin to Write Your Conclusion

Copy and Paste your work from the Trade-Offs Reflection form to the Final Proposal.

- Open and pin the Trade-Offs Reflection form from your Futura Workspace inboxes.
- Open the Final Proposal form.
- Copy your responses from the Trade-Offs Reflection form into the conclusion of the Final Proposal.
- Be sure interns select SAVE often.

REVIEW AND REVISE

- Carefully review and revise the conclusion.
- Early finishers can compare your conclusions to the Sample Proposal Conclusion in the Dossier, or swap devices and peer review a colleague's conclusion.



NSEI – 1.9 FINALIZE THE PROPOSAL

Make final revisions and submit your Final Proposals. (10 min)

Revisions to your proposals.

With the remaining time:

1. Reflect on Proposal Rubric
2. Review the Introduction section;
3. Make any final revisions to the Design Decisions sections;
4. Review the Conclusion: Considering Trade-Offs section; and
5. Check for qualities of communicating scientifically.

Submit your Final Proposal by selecting **SUBMIT**.

The proposal is complete when it has...

1. an introduction,
2. three Design Decision paragraphs, and
3. a conclusion.

If you need more time, you should select **SAVE** only and complete your proposals for after-hours work.

It's okay if you also submit, because you can resubmit later, but you should be sure to have the final submission completed by your declared deadline.

After they receive a feedback letter, they should refrain from additional submissions.



NSEI 1.9.2 HOMEWORK

After-Hours Work:

HAND IN

Revisit the Daily Message Notes in Futura Workspace to determine if you have unfinished tasks you need to complete.

Checking on Unfinished Tasks

Return to [Futura Workspace](#) and review your Daily Message Notes to confirm you've completed all internship tasks for the day.

9

Composing the Final Proposal

NSEI 9

Early finishers can peer review proposals prior to submitting

COMPLETE THE FOLLOWING:

1. Read through presentation on Mr. Lumio's Website (Classwork/Homework Page)
2. Write the Introduction Paragraph
 - Utilize your *Project Summary Questions* (**Day 4**)
 - State your Design Claim- **Copy/Paste the text from my website, just fill in the blanks**
3. Write the Conclusion Paragraph
 - Summarize why your design should be chosen.
 - Describe your priorities
 - Describe *trade-offs* (strategies used and pros/cons of drugs) **DAY 6**
 - Convince why design is optimal despite the trade-offs.
4. Revise Your Proposal Prior to Submitting (Including Design Decision Paragraphs)
5. Don't submit your Final Proposal until tomorrow.