

**IT IS IMPORTANT TO READ THE GUIDELINES CAREFULLY SENTENCE BY SENTENCE.
FAILURE TO DO SO WILL LEAD TO REJECTION OF THE PROPOSAL AND/OR FINAL
REPORT.**

**ALL EMAIL COMMUNICATIONS RELATED TO EE590 SHOULD BE SENT TO
msfine@usc.edu
otherwise they will be deleted with no response**

DIRECTIONS FOR EE590 and TEMPLATES

EVERY MSFINE STUDENT MUST COMPLETE AN INDEPENDENT PROJECT IN ORDER TO GRADUATE

The procedure for signing up for EE590 (one unit) is as follows.

1. *Use the template below to write your proposal that describes what you plan to do. If you do not know what topic/problem you like to work on follow the instructions for a topic below or talk to Prof. Petros Ioannou.*
2. *Email the project proposal to: msfine@usc.edu*
3. *Once Prof. Ioannou approves your proposal, submit a Directed Research Request on the MyViterbi website and indicate Professor Ioannou as the supervisor. You will be notified via email once your DR Request is fully approved and the d-clearance is issued so that you can then register for EE 590 on WebRegistration.*

STRICT DEADLINES FOR PROPOSALS SUBMISSIONS*

Summer: May 20 by 5pm

Fall: August 20, by 5pm

Spring: January 20 by 5pm

Proposals will be acceptable starting two weeks before the due date

The proposal file name should have the following

EE590_Proposal_Last Name_First Name.doc

STRICT DEADLINES FOR FINAL REPORT*

Summer: July 20, by 5pm

Fall: November 20, by 5pm

Spring: April 20, by 5pm

The report file name should have the following

EE590_Report_Last Name_First Name.doc

Subsequent revisions will be indicated as

EE590_Report_Last Name_First Name_Revision 1or2 etc.doc

NO LATE PROPOSALS OR FINAL REPORTS WILL BE ACCEPTED

USE MICROSOFT WORD

DO NOT REPEAT INSTRUCTIONS (indicated in blue) IN YOUR REPORT

Use font size 11 , space 1.15, Times New Romans, Border space Normal 1inch from sides and top and bottom. The use of extra space to fill pages or use of large side spaces is not allowed. If you copy graphs, figures or tables from any source you need to indicate so and provide a reference. Cut and paste of text from papers or reports and presenting as yours is plagiarism and offenders will be penalized with no credit. All reports will be checked for overlaps using a plagiarism software tool.

PROPOSAL TEMPLATE)

Use the structure and format below. Do not repeat the questions/instructions in blue. IMPORTANT: Make sure you write correct English and use the word speller to correct all spelling errors. Proposals with spelling or grammar mistakes will be returned.

Template starts after the line.

COVER PAGE (1 page separate from the rest) EE590 Project Proposal

Term:

Date:

Title of Project:

Name:

Student ID:

NO SPACES BETWEEN FOLLOWING SECTIONS ARE ALLOWED

Proposed Work (3 pages min without counting space of Figures and Tables. Use no more than one Figure and one table)

1. Problem Statement

(1 page min). What is the problem you are trying to solve and why is it important? Be very specific

2. Approach (1 and 1/2 pages min)

What theory are you planning to use to solve the problem? What software tools are you planning to use? What assets and how many are you analyzing if any? Use equations to explain your approach where needed making sure all variables are defined. How are you going to collect your data? How will you validate or backtest your models or results?

3. Deliverables and Expected Outcome (1/2 page min)

Write what you will deliver at the end of the project to me. For example: Final report, Software code ready to run and whatever you believe is a deliverable needs to be stated. Even though obvious you need to state it. Who can use your results and how?

4. References (no page limit)

Include all references and sources of information you have mentioned in your proposal. DO NOT LIST REFERENCES NOT MENTIONED IN PROPOSAL . List references as

[1] Ioannou PA, Mathematics and Tools for Financial Engineering, SIAM, 2021

[2] <https://viterbigradadmission.usc.edu/programs/masters/msprograms/ms-financial-engineering/>

and indicate in text as [1], [2]. Never use . [1] but use [1].

FINAL REPORT TEMPLATE

At least 8 pages long excluding references , cover page and appendix. Do not copy diagrams from references or leave empty spaces between sections in order to fill up pages.

Use MS Word

Template starts after the line.

Cover Page (one separate page)

Course: EE590 Project Report

Name:

Student ID:

Email:

Term:

Project Title:

Date:

Executive Summary

(1 page min)

- Describe what problem you considered
- How you solved it
- What are the results and conclusions

The summary tells the reader what is the problem how you solve it and what results you obtain and how significant they are. It is for the reader who does not want to read the rest of the report. No figures or diagrams in this part

1. Introduction

(1 page min)

- Describe in more detail what problem you are addressing
- Why is it important
- What method you used
- What are the results? Describe them in a couple of sentences. This is not the place to list them
- What is the conclusion
- Figures and tables should be labeled. Under the figure you write as an example ' Figure ? Return vs Time' . Table captions go above the table. Plots are labeled as figures and captions go under the plot.

2. Problem Statement

(1 page min)

- Describe clearly the problem you are considering.
- What are you trying to achieve by addressing the problem

3. Approach

(5 to 8 pages)

- Describe the theoretical method you use and why you chose it. Use equations to explain the theory with references. Focus on the equations you use. Do not simply copy theory from books.
- Describe clearly how you used it to generate the results
- **DO NOT SIMPLY WRITE FORMULAS COPIED FROM BOOKS. SHOW HOW YOU USED THEM TO CALCULATE TERMS**
- Describe what data you needed and where you found them
- Give a reference where you got them from
- Describe your results and their significance
- Use tables and graphs to explain your results
- Describe whether your objectives and goals have been achieved

4. Conclusions

(2 to 3 paragraphs)

- Describe your conclusions
- What is the significance of your results

5. References

(as many pages as needed)

- List all references and websites that you used and you referenced in the report. **DO NOT INCLUDE ANY REFERENCE THAT IS NOT MENTIONED IN THE TEXT.** Use same format as in proposal i.e number as [1], [2]....

6. Check list (separate page) with initials and signature

Appendix (as many pages as needed): Software used, list of Data etc

- Attached software code used ready to run i.e matlab code, excel etc

NOTES: Plots are labeled as Figures and Figure number and caption goes under the plot. Tables are labeled as tables and Table number and caption is placed above the table

Check List for Proposal and Final Report

Check that you addressed each item and initial it to the right

1. **Structure of document:** font, spaces, minimum number of required pages.
Font should be 11 or 12. Space should be single or 1.15. Margins should be 1in all around _____
2. All **abbreviations** are defined when first appeared _____
3. All **figures and tables** are labeled with numbers and captions. Figure captions go under the plots and table captions above tables. Make sure you indicate units. _____
4. Figures, tables, diagrams, pictures taken from the web or papers should include the source otherwise it is plagiarism _____
5. No text should be copied and paste from anywhere as it is plagiarism. If you quote someone you should put it under “...” and identify the source as a reference but it should not be more than a couple of lines. _____
6. All listed references should be mentioned in text. Use format [1], [2]

7. **Grammar and English** should be carefully checked . No report with typos and grammatical errors will be accepted. Check the tenses. Some students tend to use parts of the proposal that uses the words ‘I will’ , ‘I plan’ etc. The final report should state what you did not plan to do. _____

PLIAGIARISM: *Any identified form of plagiarism will be reported to the University and in addition to receiving no credit for EE590 the graduation of the student may be affected. All past reports are kept and a software program is used to identify overlaps with past reports and literature. If you use figures or tables or diagrams from a website or papers you need to indicate that and include the reference..*

I confirm that my proposal/report abides with the above guidelines and no material was copied from any source that is not indicated in the report and referenced accordingly.

Name _____

Signature _____

DIRECTIONS FOR TOPIC

You are encouraged to come up with your own topic. If you cannot below are some ideas: Start with a \$1 million hypothetical portfolio. Choose any of the following:

1. Invest fully in bonds. Invest all money in bonds by looking into risk, returns and diversification plus immunization for low sensitivity to interest rates
2. Invest in a number of stocks that you analyze using optimization to maximize return or minimize risk or both
3. Invest in mutual funds that you analyze for diversification, risk, return, manager performance and other criteria and use optimization to select a mix that maximizes return or minimizes risk or a combination.
- 4 Use real data to develop models and make asset price predictions

Use part of real data from past to set up your portfolio. Use remainder of past data to check whether what you expected to get is confirmed. For example if you set up a portfolio with an expected return of 15% did you get it?