Cleveland State University
Department of Mathematics and Statistics
(select one) Senior Project Contract MTH 496 __ 496H__

To be filled out by instructor and student. Submit electronic copy to mathematics@csuohio.edu. For projects that will take place in a semester for which enrollment is not yet open, please wait to submit form until enrollment has been opened for the academic year containing that semester.

Student Name: _____   CSU ID:_____

Student Email:_____   Term/Year:_____
(If summer indicate 6W1__ 6W2 __ 8W__ 10W__)

Faculty Advisor:_____

In each category below, be as precise as possible while recognizing the tentative nature of some decisions.

Proposed Project Title: _____

Readings to be covered: _____

Number of meetings with advisor planned: _____

Requirements:

- The student will write a paper on the topic listed above following the Departmental Guidelines provided by the faculty supervisor.
- A copy of the paper must be submitted both in a printed version and an electronic version to the faculty supervisor by the deadline listed below.
- The project will be reviewed using the Departmental Grading Rubric for Senior Projects.
- Honors Projects must include an oral presentation of the project, preferably at a conference (alternate arrangements will be made if necessary).

Deadlines:

Submit draft of paper to advisor: _____ (around 12th week)

Submit final version of paper to advisor: _____ (end of semester)

Oral presentation date and location, if required: _____

I have completed MTH 396. I have discussed my proposal with the faculty member named above. I understand and agree to all the requirements and the deadlines for this Senior Project as specified above.

Student signature: _____   Date _____

I agree to supervise the student named above in the writing of their Senior Project. We have discussed the proposal, and I agree to the requirements and deadlines for this Project as specified above.

Faculty signature: _____   Date _____

Department use only:
Course Number _____   Section _____   Class Number _____

To be completed by Faculty Advisor upon completion of project (and oral presentation for Honors projects):

This project has been accepted toward completion of the requirements for the Bachelor's Degree in Mathematics.

Advisor's Signature_____   Date_____

revised: 11/2021

Department of Mathematics and Statistics
Guidelines for MTH 496/496H Senior Project

The student must write a professional quality expository mathematical paper about their chosen topic. The paper is not required to contain original research, but must report on an important area of mathematics or a significant application of mathematics.

1. It must contain at least one significant mathematical result and its proof. Papers of a computational nature must provide a mathematical justification of the methods used.
2. The paper must contain the following:
   a. Title page: This includes the title, the author's name, the date, the course number. It belongs on its own page.
   b. Abstract: A brief (one paragraph) description of the content of the paper. It belongs on its own page and should have the word Abstract on it.
   c. Table of contents
   d. Body: The body of the paper should be divided into at least four sections: an introduction, a background section, at least one main topic section, a conclusions/further research section. The introduction should include introduce the problem to the reader. It can include history of the problem. It should explain why the problem is interesting. The main results should be stated or summarized here, but do not include proofs. Motivating examples may also be included here.
   The background section should include any definitions and basic facts which the reader will need in order to read the remaining sections, except for those definitions will not make sense until later. It is often easier to write this after the main topic sections since it may not be clear which definitions are needed until the topic sections are written.
   The main topic section(s) are the discussion of the main results of the paper. This is where the significant mathematical result and its proof belongs. It should be broken down in to groups of related results. It should include theorems, lemmas (if appropriate), proofs, any consequential definitions, examples, computational results (if appropriate) and applications (if appropriate). The conclusions and further research section is generally quite short. It may draw any conclusions not yet stated. It should indicate any other directions which subsequent research might take.
   e. References: List all the resources used, even if they were not directly quoted in the body of the paper. See Item 8 below for the style.
   f. Appendix (optional): If the project included computational explorations, printouts of the code and/or computations may be placed in an appendix.
3. Projects done for other courses are not accepted, but it is possible to work on an extension of a project done in other course. The same rules of the previous item apply.
4. Papers will be graded not only for mathematical correctness, but also for correct use of English and quality of presentation.
5. The paper must be electronically typed. It may be done using Microsoft Word and MathType or using some version of TeX/LaTeX. MathType is available for student use under the department license. Download MathType 5.2c from http://www.dessci.com During installation respond that your institution is Cleveland State University and registration number is either MTWE521-002163-8XPJ3 (Windows) or MTME501-001148-VJ243 (Macintosh).
   An excellent resource is Learning LaTeX by David F. Griffiths and Desmond J. Higham. (Dr. Gold has copies available for borrowing.)

6. The paper should be 10-25 pages long, single spaced, using the font Times New Roman at 12pt or the standard 12 point TeX font. This length includes all items mentioned in Item 2 except appendices. A larger font may be used for the title.
7. The draft as well as the final version of the paper should be turned in both electronic and printed versions.
8. A consistent bibliographic style should be used. Consult a style manual or use BibTeX if you are writing in LaTeX. Be sure to cite any references that were consulted even if they were not quoted in the body of the paper.
9. This course will strictly enforce the university's policy on plagiarism, as described in the CSU Student Handbook: ``The CSU Student Handbook describes plagiarism as stealing and/or using the ideas or writings of another in a paper or report and claiming them as your own. This includes but is not limited to the use, by paraphrase or direct quotation, of the work of another person without full and clear acknowledgment.'' From http://www.csuohio.edu/writingcenter/WAC/Plagiarism.html The CSU policy will be strictly enforced in the course, and plagiarism will be reported as required by university guidelines.
10. According to CSU rules, a grade of incomplete can only be granted to students that are passing in the course but are unable, due to unforeseen circumstances, to finish the course work. In the context of MTH 496/496H passing will be interpreted to mean that the student has handed in a version of the paper that needs only minor revisions.

The draft version should contain:
1. General outline of the project should be concluded, as well as reference search.
2. Major parts of the write-up should be near completion. Concentrate on the main part of the development of the project. Remember, the introduction and conclusions should be the last thing to be written (start the paper "from the inside out").
3. If the project requires computational experiments or development of code, it is acceptable to have those incomplete.
4. A plan of what remains to be done to complete the project.

Oral Presentation:
1. Oral presentations are required of Honors students and as specified by the advisor.
2. Talks (usually 15 minutes) may be given at the following conferences or another venue arranged with the faculty advisor. More details about the three listed below may be obtained from the Math Club advisor.
    a. Miami University PME Conference (usually in September)
    b. Youngstown PME Conference (usually in February)
    c. Ohio MAA Spring Meeting (usually in April)
3. Students should create computer slides to accompany their talk. This may be done using PowerPoint, Beamer, or comparable software.
4. Students should practice in front of a faculty member before giving the talk at a conference. The CSU Math Club is an excellent forum for practicing a talk.