

MTH 513: Submission Guidelines for Assignments

Prepared by: Vasilije Perovic (August 2020)

Assignments: Computational Worksheets, Homework and Portfolio Problem Sets, Exams.

All of the assignments in this course will need to be submitted as a **single pdf file**. When submitting your work via Assignments on Brightspace, you will have two options. Note that by not following formatting/submission guidelines will result in your final score being reduced.

Option 1: Print the assignment, handwrite your answers directly on the printed pages, scan and upload your work as a single pdf file on Brightspace by the specified deadline.

Option 2: Instead of printing the assignment (many do not have an easy access to a printer), you can write solutions to each *individual problem* on a *new/separate sheet of paper*. On top of *each page* include your name, page number, and problem #. Finally, scan and upload your work as a single pdf file on Brightspace by the specified deadline.

Common Assignment Guidelines

1. No matter which option you choose, *neatness and organization* of your answers matter! Your answers should be legible and there should be no scribbles.
2. Please leave room for feedback by having each problem written/typed on a separate sheet of paper.
3. Mathematics is much more than a bunch of scribbled equations with a circled number at the end. The narrative of your solution is very important. Solutions should always contain complete sentences narrating the solution.
4. You are also welcome (and encouraged) to contact me to and discuss problems on assignments in timely manner. While I won't solve the problem for you (or tell you if the solution you have is correct), I can discuss your ideas with you.
5. **Avoid using the internet for homework help.** Information found on the internet is of questionable origin and correctness, and this is particularly true for mathematical proofs. No one stops people from proudly posting incorrect or vague proofs. Handing in a verbatim copy from the internet will result in a zero.
6. **If you are allowed to discuss problems with your classmates (not true for all assignments)**, then you must write solutions by yourself, that is, do not write solutions together or look at another person's solutions as you write yours! If you discuss specific problems with another student, indicate this on the assignment when you hand it in, e.g., I worked with Terence Tao on problems 3 and 5 and with Andrew Wiles on problems 1 and 2. Handing in identical homework assignments will result in zeros for all such copies.

Remarks on Computational Worksheets (Brightspace -> Assignments)

- Due every week **on Friday by 11pm**.
- These worksheets are designed to provide you with practice and feedback on the computational aspect of covered material.
- The guidelines below are in addition to the Common Assignment Guidelines:
 - Submission with answers only will be given a zero. You must show the work for credit.
 - Worksheets submitted past the deadline or submitted in any way other than Brightspace will not be accepted.
 - The lowest worksheet score will be dropped.
 - You should be able to complete these worksheets relatively quickly and by yourself. However, *you may discuss these problems with classmates* as long as you follow *Common Assignment Guideline #6*.

Remarks on Homework Problem Sets (Brightspace -> Assignments)

- Due roughly every other week **on Sunday by 11pm**.
- Homework assignments for this course will be the bulk of the work that you need to do for this course. Working through them is the most important part of the course, and best prepares you to use the concepts of matrix theory as needed in the future.
- Homework problem sets are closely aligned with the Course Learning Outcomes and are used to assess mastery of *higher-level concepts by making rigorous, logically-sound arguments*. With these problems you will *analyze, evaluate, and create logical arguments* for concepts/theories studied in the course.
- There will be plenty of time to complete homework assignments, provided you begin working on them right away. Don't leave them to the last minute! Late assignments (accepted at my discretion) will receive penalties.
- The guidelines below are in addition to the Common Guidelines for ALL Assignments:
 - I will grade *typically* a subset of the problems on any given assignment. I expect that all problems on each assignment will be completed, or at least reasonably attempted.
 - You are *welcome (and encouraged)* to work with classmates on homework problems, as long as you follow *Common Assignment Guideline #6*.
 - I *encourage* you to type homework assignments, though I will accept handwritten solutions. HOWEVER, your solutions must be *legible and adhere to all the standards of writing mathematical arguments*. If you decide to type your answers, LATEX is an excellent choice for typesetting mathematics and my recommendation (I use it to write all homeworks and exams), but Word, Mathematica, and others are available as well.
 - I have posted several LATEX resources on Brightspace to get you started. By the end of the semester, it will be easy to have your entire homework typeset.

Remarks on Portfolio Problem Sets (Brightspace -> Assignments)

- Due roughly every other week **on Wednesday by 11pm.**
- These problems are designed so enable students to (re)prove/(re)discover "smaller" results through a guided approach. At the end of the semester, these results will culminate in a proof of arguably one of the most important theoretical results in linear algebra (stay tuned!)
- Portfolio problems will be available at least three/four weeks prior to its due date, and you are encouraged to work on them alongside your regular homework assignments.
- In contrast to the homework problems which are aligned with the material covered around the time they are assigned, portfolio problems are geared toward one of the end goals of the course.
- The guidelines below are in addition to the Common Assignment Guidelines:
 - I will grade ALL portfolio problems and provide you with a feedback in written and/or verbal form.
 - In contrast to the homework problems, complete solutions to portfolio problems will NOT be posted.
 - You are *welcome (and encouraged)* to work with classmates on portfolio problems, as long as you follow *Common Assignment Guideline #6*.
 - You can resubmit corrections to submitted portfolio problems for maximum of up 50% of missed credit. For example, suppose a problem is worth 10 points and you receive 7 points on your initial submission. If your resubmitted version is completely correct, then your adjusted score will be $7\text{pts} + (0.50)*3\text{pts} = 8.5\text{ pts}$.
 - You are NOT allowed to discuss with anyone the feedback on your portfolio problems and you are NOT allowed to prepare rewrites with anyone else. Rewrites should be your own work. Discussing feedback with your classmates, even if you are not the one seeking help, will be considered cheating.

Midterm Exam & Final Exam: (Brightspace -> Assignments & Quizzes)

- ALL exams will be **take-home, with the window of 24 hours to complete them.**
- Detailed study guides will be provided at least two weeks before the exams.
- *Missed exams* will be permitted only in those cases when a student documents a genuine medical or personal emergency. In such a case you must notify instructor of your emergency within 24 hours of the day of the scheduled exam.
- You are **ONLY ALLOWED** to discuss midterm and final exam problems with me.
- You are allowed to use our textbook and our class notes/videos, but nothing else.

PDF Files: **How to do it** and **what not to do**

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For majority of the assessments in this course, you will need to submit handwritten work as a SINGLE pdf file – I do not recommend spending time to type your answers, unless you already have experience with LaTeX. If you already have experience working with pdfs, feel free to skip the text below.

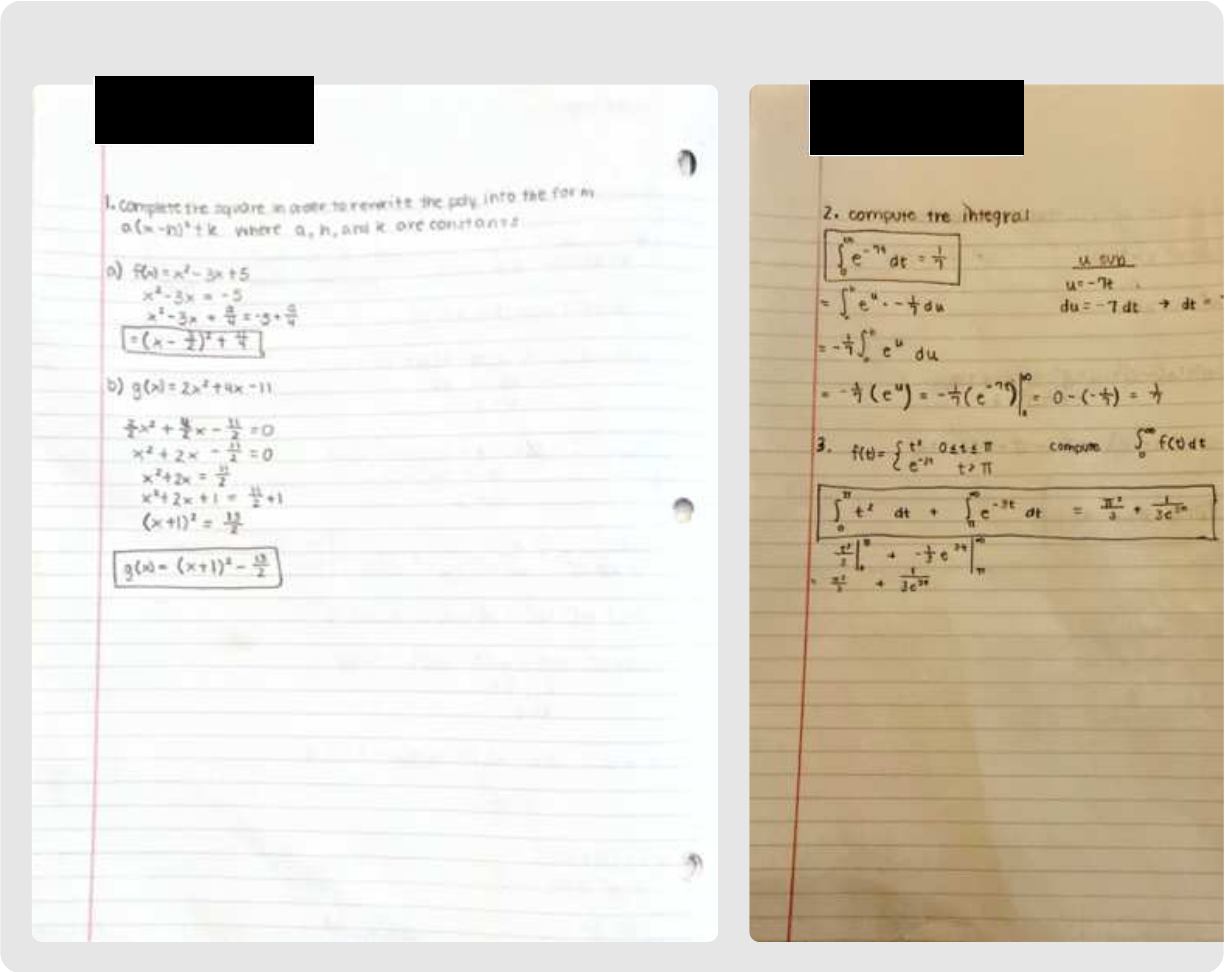
There are several ways one can convert handwritten notes into a pdf file. Here are some that I know of, all freely available:

1. Of course, one can use a scanner if available.
2. Using a smart device, e.g., phone or a tablet. I am familiar with the following FREE applications:
 - a. Apple iOS – Scannable
 - b. Android - ScannerApp (Basic is all you need!)

Whichever application you choose, **you should not have to purchase it!**

3. If none of the above options work, then you can do the following:
 - a. Take clear photos of individual handwritten pages.
 - b. Import each photo in a single Word document (one photo per page, enlarged as much as possible covering the entire page).
 - c. Export/save the Word document as single pdf.

**The subsequent pages show examples of what is
NOT a good practice when working
with pdf files or acceptable in our course.**



Student has written one problem per page, copied statements of problems, and had written his/her name on each page. All that is great!

Make sure that the application on your phone/tablet that you are using is exporting the correct thing. It is ALWAYS a good practice to try to open/download the file and see that it opens up correctly.

(extra space for problem #3)

$$u_1(x) = \frac{x^2}{2}$$

$$u_2(x) = -\frac{1}{2}x^2 \ln(x) + \frac{x^2}{4}$$

$$y_1 = x^2 \ln(x)$$

$$y_2 = x^2$$

$$y_p(x) = u_1(x)y_1(x) + u_2(x)y_2(x)$$

$$\left(\frac{x^2}{2}\right)(x^2 \ln(x)) + \left(-\frac{x^2}{2} \ln(x) + \frac{x^2}{4}\right)(x^2)$$

$$\frac{x^4}{2} \ln(x) - \frac{x^4}{2} \ln(x) + \frac{x^4}{4}$$

$$y_p(x) = \frac{x^4}{4}$$

$$y(x) = c_1 y_1 + c_2 y_2 + y_p(x)$$

$$c_1(x^2 \ln(x)) + c_2(x^2) + \frac{x^4}{4}$$

$$y_p(x) = \frac{x^4}{4}$$

$$y(x) = c_1(x^2 \ln(x)) + c_2(x^2) + \frac{x^4}{4}$$

When scanning pages or taking photos of
handwritten work, make sure that each
page is legible and readable.

Not exactly a crucial part of the answer, but OK since it did not impact the readability and space to leave comments.



This student puts his/her name on each page and labeled each page with a number. OK!

Page 2

2.)

?

$$\begin{aligned} C_0 &= 10 \\ C_1 &= -4 \\ C_2 &= 1 \end{aligned}$$

No work is shown!

Missing statement of the problem!
If handwriting solutions,
then please restate the problem.

One problem per
page. OK!

This student has printed the assignment hence no need to label pages. OK!

2. Compute the integral $\int_0^{\infty} e^{-7t} dt$.

(20 pts)

$$-\frac{1}{7} \int_0^{\infty} e^{u} du$$

$$-\frac{1}{7} \cdot e^{-7t} \Big|_0^{\infty}$$

$$-\frac{1}{7} [e^{-7 \cdot \infty} - e^{-7 \cdot 0}]$$

$$-\frac{1}{7} [0 - 1]$$

$$0 + \frac{1}{7} = \frac{1}{7}$$

$$u = -7t$$

$$du = -7 dt$$

$$-\frac{1}{7} du = dt$$

This student took a picture of the handwritten work, imported in WORD, and save the entire file as pdf file. That part is OK!

$$\int_0^{\infty} e^{-7t} dt = \frac{1}{7}$$

However, make sure that the imported picture is of sufficient resolution and it is stretched to the corners of the page. You may need to adjust margins in Word, which should be easy!

Turn over →