
WRITING STYLE

Differential Equations might be one of the most mathematically rigorous courses you will have taken to date. Although *Differential Equations* is very practical and applies to *many* real problems of engineering, physics, mathematical biology, financial analyses, geology, meteorology, and other fields, it is also very theoretical. These two aspects—practicality and theory—cannot be separated to fully understand and correctly apply **Differential Equations**.

As you proceed through higher level courses, you are expected to apply more mathematical rigor and demonstrate more mathematical maturity than what might have been expected of you in past courses. You should therefore follow these rules to sharpen your mathematical writing skills. Violating these may result in point deductions.

Because I might occasionally collect homework:

1. Problems should be worked first on scratch paper. Once you have solved the problem, rewrite your solution neatly on new loose-leaf paper so that your steps are understandable, legible, and easy to follow.
2. Homework should appear on **one side of the sheet only** (not front and back).
3. Homework should be written on loose-leaf paper (not spiral notebook paper).
4. Each section (as enumerated in the text: 1.1, 1.2, 1.3, etc.) must begin on a new page. When assignments are collected, pages should be **stapled by section** with your name and section number printed neatly on the first page of each section.
5. Sections, problems, and pages should appear in their natural order, of course.
6. Long problems should **always** begin on a new page.
7. All steps should be written professionally, neatly, and logically. All work must be legible and solutions should proceed logically and clearly **down the page** (not across the page). Poor handwriting will result in point loss. (Your instructor should not have to struggle to read your handwriting or understand your steps.)
8. Include sentences to explain your steps. Assign numbers to key equations in your work and refer to them. E.g.,
 - “We solve the governing equation (4) to obtain the general solution $y(x) = \dots$ ”
 - “Now that the ODE is separated, we may integrate both sides to obtain. . .”
 - “Since the driving force frequency matches the natural frequency and there is no damping, the solution undergoes pure resonance.”
9. All steps should be shown for full credit. Many students believe that the ability to skip steps impresses the instructor. On the contrary, detailed, thorough, neat and systematically written steps impress most instructors. Remember that it is your responsibility to demonstrate mastery of the material to the instructor. (It is not the instructor’s responsibility to figure out your missing steps. Also, the instructor should not have to assume that you know how to get from one step to the next.)
10. Correct mathematical notation must be used at all times. This includes but is not limited to:
 - (a) proper use of the equal (=) sign,
 - (b) proper use of the “implies” symbol \implies ,
 - (c) proper use of derivative and integral notation.
11. Always circle your final answer to each problem.
12. Solutions to different problems should not appear side by side. That is, you should write solutions in single column format proceeding down the page.

Consider that someday you might want to ask an instructor to write a recommendation letter for you. Following the above rules will carry much weight when the instructor considers writing a letter of recommendation for you.[†]

[†]Your professors are not only looking at your grade but are also forming opinions based on your behavior in class (e.g. promptness, attentiveness, attitude, respect, attendance, participation) but *also* on the *quality* of work you submit. For example, I’ve written some letters in which I had to say things like: “Besides the strengths I’ve listed, and although J— did well in my course and generally seems to know what he’s doing, he could do better.” or “In my class he projected the attitude that showing proper details (i.e., writing good reports) was a waste of his time.” or “He would probably make a good employee/graduate student, but he sometimes shows a lack of respect to those over him.”