

MAT3360 — Introduction to Partial Differential Equations

Mandatory assignment 1 of 1

Submission deadline

Thursday 14 February 2019, 14:30 through Canvas.

Instructions

You can choose between scanning handwritten notes or typing the solution directly on a computer (for instance with \LaTeX). The assignment must be submitted as a single PDF file. Scanned pages must be clearly legible. The submission must contain your name, course and assignment number.

It is expected that you give a clear presentation with all necessary explanations. Remember to include all relevant plots and figures. Students who fail the assignment, but have made a genuine effort at solving the exercises, are given a second attempt at revising their answers. All aids, including collaboration, are allowed, but the submission must be written by you and reflect your understanding of the subject. If we doubt that you have understood the content you have handed in, we may request that you give an oral account.

In exercises where you are asked to write a computer program, you need to hand in the code along with the rest of the assignment. It is important that the submitted program contains a trial run, so that it is easy to see the result of the code.

Application for postponed delivery

If you need to apply for a postponement of the submission deadline due to illness or other reasons, you have to contact the Student Administration at the Department of Mathematics (e-mail: studieinfo@math.uio.no) well before the deadline.

All mandatory assignments in this course must be approved in the same semester, before you are allowed to take the final examination.

Complete guidelines about delivery of mandatory assignments:

uio.no/english/studies/admin/compulsory-activities/mn-math-mandatory.html

GOOD LUCK!

Problem 1. Do exercise 1.14 (pages 24–25 in the book).

Problem 2. Do project 2.1 (pages 82–84 in the book). Note that there are some misprints:

- In part d) there is one “)” too much. The correct formula reads

$$u(x) = x(\alpha(1) - \beta(1)) + \beta(x) - x\alpha(x).$$

- In part e), in the formulas for α_{i+1} and β_{i+1} the fraction $h/2$ should read $h/4$. The correct expressions are

$$\alpha_{i+1} = \alpha_i + \frac{h}{4}(f_i + 2f_{i+1/2} + f_{i+1}),$$

$$\beta_{i+1} = \beta_i + \frac{h}{4}(x_i f_i + 2x_{i+1/2} f_{i+1/2} + x_{i+1} f_{i+1}).$$