

# Numerical Methods 2 – course info and assessment regulations

(winter semester 2023/2024)

Contact hours: lecture (2h a week) + tutorials (1h a week) + lab. (1h a week).

## I. Lecture (course) main topics:

1. Computer arithmetic.
2. Numerical differentiation.
3. Numerical integration (advanced methods).
4. Numerical methods for matrix eigenvalue problem.
5. Numerical methods for solving differential equations.
6. Least squares approximation.
7. Spline interpolation.

The lecture will follow the script

[https://pages.mini.pw.edu.pl/~kellerp/teaching/2023/nm2/files/NM2\\_Script.pdf](https://pages.mini.pw.edu.pl/~kellerp/teaching/2023/nm2/files/NM2_Script.pdf)

however, the order of topics may be different (also, some of the topics may not be discussed during the course). After every lecture, a brief information concerning the topics that have been discussed (including the corresponding page/chapter numbers from the above script) will be posted on the course web page:

<https://pages.mini.pw.edu.pl/~kellerp/teaching/2023/nm2/>

The 7th, 14th, and 15th lecture meetings are reserved for knowledge verification tests and verification tests retake. It will not be possible to retake only one verification test. Entering the retake meeting means a student gives away all points from the first and the second verification test. Each 60 minutes verification test will consist of five exercises ( $-3/4$  to 3 points each). The 90 minutes retake test will consist of six exercises ( $-5/4$  to 5 points each).

## II. Tutorials

See the document “Tutorials assessment regulations”:

[https://pages.mini.pw.edu.pl/~kellerp/teaching/2023/nm2/NM2\\_TutorialsRules.pdf](https://pages.mini.pw.edu.pl/~kellerp/teaching/2023/nm2/NM2_TutorialsRules.pdf)

## III. Laboratories

See the document “Laboratory rules, information, and schedule”:

[https://pages.mini.pw.edu.pl/~kellerp/teaching/2023/nm2/NM2\\_LabRulesAndSchedule.pdf](https://pages.mini.pw.edu.pl/~kellerp/teaching/2023/nm2/NM2_LabRulesAndSchedule.pdf)

## Assessment regulations

A student may obtain:

- **0-34** points from **laboratories**,
- **0-36** points from **tutorials**' exercises,
- **0-30** points from the **knowledge verification tests**,
- up to **10** activity points (see below).

In order to pass the subject, a student must:

- collect at least **10 points** from solving **tutorials' exercises**,
- collect at least **5 points** from each **laboratory mini-project** (*Matlab features exercises points do not count here; also, possible -40 points of plagiarism penalty is not taken into account here*),
- collect at least **5 points** from each one of the two **knowledge verification tests**,
- collect at least **50 points** (*in total – all points count here!*).

**Final grade** is based on the total sum of collected points:

[50; 60)	→	3.0
[60; 70)	→	3.5
[70; 80)	→	4.0
[80; 90)	→	4.5
[90; $\infty$ )	→	5.0

## IV. Activity points

In contrast to other points, **activity points** are collected with the same amount by all students.

- If at least **20 students** are present during a (whole) lecture meeting, **no student is late** more than two minutes (this also applies to the second part of the lecture -- after a break) that day, **the teacher is not disturbed** during the lecture (i.e., students stay quiet unless asked a question), and the **number of students does not visibly decrease after the break**, then **all students** (also those who are not present during this lecture meeting) obtain **0.5** of an activity point. This rule does not apply to the first lecture and to the test meetings.
- For each **classes evaluation questionnaire** filled by a student **all students** obtain **0.03** of an activity point (the teacher does not know the names of the students who have filled the questionnaire, he only knows their number).

Because of the presence of **activity points** no extra points will be given to a student, even in the case only 0.01 of points are missing to a higher grade threshold!

## RULES OF SENDING EMAILS TO THE TEACHERS

Due to a very large number of emails received by teachers (including spam), it is required that all emails concerning the Numerical Methods 2 course are sent according to the scheme: the subject should start with characters "**WUTNM2**" (WUTNM2 and a single space; **do not** put the quotation marks), followed by a short description of a matter the email concerns.

In the first line of every letter, write **only** your **first name/names, surname, and index number**. Next, **put an empty line before the rest of your letter**. It is recommended that you send letters from the university email account. If that is not possible for some reasons, use an account (email program) configured in such a way that the displayed name of the sender is his name and surname.

**Letters sent in the form other than described above may be replied to with a significant delay or not replied to at all (for the reasons described earlier).**

**Teachers' email addresses:**

- [iwona.wrobel@pw.edu.pl](mailto:iwona.wrobel@pw.edu.pl)
- [michal.tuczynski@pw.edu.pl](mailto:michal.tuczynski@pw.edu.pl)
- [pawel.keller@pw.edu.pl](mailto:pawel.keller@pw.edu.pl)

## Suggested Numerical Methods textbooks

1. D. Kincaid, W. Cheney, *Numerical Analysis*, 3rd ed., AMS, Providence, RI, 2002
2. W. Cheney, D. Kincaid, *Numerical Mathematics and Computing*, 6th ed., Thomson Brooks/Cole, 2008
3. G. Dahlquist, A. Björck, *Numerical Methods*, New Jersey, 1974
4. G. H. Golub, Ch. F. Van Loan, *Matrix Computations*, 3rd ed., New Delhi, 2007