

**AMSC466/CMSC466, Sec. 0101: Introduction to Numerical Analysis**

**Department of Mathematics, UMCP**

**Fall 2023**

Handout: COURSE SYLLABUS AND POLICIES (4 pages)

Date: Tuesday, 08/29/2023

**Lectures: Room:** PLS (Plant Science) 1111

**Time:** Tue Thu 11:00am–12:15pm

**Note:** Lectures are **in person**. NO video recording is planned. NO notes will be posted.

**CONTACT INFO: Instructor:** Professor Dio Margetis; e-mail: diom@umd.edu

Office: MATH2106; phone: 5-5455. **Homepage:** <https://www.math.umd.edu/~diom/>

**Office hours:** (i) **In person:** Tue 1:00pm-1:30pm (after class). (ii) **On Zoom:** Wednesday 5:00pm-5:45pm. Or, (iii) **by appointment.** *Office hours start on Tue 09/05/23.*

Zoom meetings for instructor's office hour are scheduled through ELMS/Canvas.

Students at instructor's office hours should have *specific and well-defined* questions. **Students are encouraged (but not required) to wear KN95 face masks during in-person meetings.** I am happy to meet on Zoom with students who prefer not to wear face masks.

**Grader:** TBA; e-mail: TBA **Office hour: Time:** TBA

The grader's office hour will be announced/scheduled through ELMS/Canvas.

**ELMS/Canvas:** This platform will be used for the course. The details of the Zoom meetings (ID and passcodes) for office hours should be found there. Only authenticated UMD users are allowed to join Zoom meetings. **This syllabus and homeworks** will be posted there. To access ELMS, go to <https://myelms.umd.edu>; log in using UMD username & passwd. I will send IMPORTANT announcements via ELMS messaging. Make sure that your email & announcement notifications (including changes in assignments and/or due dates) are enabled in ELMS. You are responsible for checking your email and Canvas/ELMS inbox frequently.

**COURSE SPECS: Prereq's:** 1 course with a min grade of C- from (MATH240, MATH461, MATH341); and 1 course with a min grade of C- from (MATH340, MATH241); and 1 course with a min grade of C- from (CMSC106, CMSC131); and minimum grade of C- in MATH410.

**Course Web page:** To access it, **go to my homepage (above) – click on Teaching and then find course.** **But:** Homeworks & announcements will be posted on ELMS/Canvas.

**Required text:** T. Sauer, *Numerical Analysis*, Pearson, 3rd Ed., 2018. In addition, we will use *Lectures notes on Introduction to Numerical Analysis*, by **Prof. Doron Levy**. These lecture notes are made available as pdf to the students on the **Course Web Page** (see above). **Note:** I may also use material from the texts: (1) G. W. Stewart, *Afternotes on Numerical Analysis*, SIAM, 1996. (2) E. Süli, D. Mayers, *An Introduction to Numerical Analysis*, Cambridge, 2003.

**Outline:** Basic concepts of numerical analysis, including ideas germane to optimization.

Topics: Num. schemes for nonlinear eqs. (2 weeks). Interpolation (2-3 weeks). Approximation & least squares (3 weeks). Num. differentiation (1-2 weeks). Integration (1 week). Conjugate gradient, optimization (2 weeks). Machine learning; neural networks (1 week), if time permits.

**The course description is given on the Mathematics Department web page at:**

<https://www-math.umd.edu/undergraduate/departamental-course-pages/offered-courses/421-ams-466-introduction-to-numerical-analysis-i.html>

**MATLAB:** A limited, really small, number of homework problems may require basic programming skills. This is not a programming class, so it will be assumed that you have some basic programming knowledge. You may use Matlab for the *computer assignments* (if any).

Access to Matlab is available on the University computer systems. You can also purchase a student version of the program for your own computer. There are various online resources on Matlab programming. In case you do not know how to work with Matlab, you should go over some of these resources. **Links to online resources are available at Course Web page.**

**EXAM:** There is only **ONE in-person, proctored written Final exam** on following date:

- **Final Exam: Wednesday, December 13, 8:00-10:00am**, in lecture room.

*Note:* This is a scheduled exam according to the University schedule of Final Exams. In the (unlikely) event of a prolonged university closing, for example, adjustments to the course schedule, deadlines, and assignments will be made based on the duration of the closing and the specific date(s) missed. Please follow the course ELMS announcements for related updates.

**Word of Caution:** Students who unjustifiably miss the exam will be called upon to explain; and might not be given the chance to make up for it, or might be advised to drop the course. (The policies for a make-up final exam can be found below.)

**Note:** To help students prepare for the Final Exam, I will give a **Practice Midterm Exam on Thursday Sept. 28**, in regular class. This practice exam won't count toward the final grade. In addition, I will give practice tests for students to do at home (separately from homeworks). Students' answers to these tests and problems won't be collected nor graded.

**ASSIGNMENTS/HOMEWORKS:** There will be 8-9 sets of required homeworks. These assignments will be posted on the ELMS/Canvas, and will be announced in class. Once assigned, each homework should be turned in by the date specified, **in class**. **Late homeworks will not be accepted, in principle**. Solutions to homeworks won't be distributed, but selected problems will be solved in class. The requirements for legibility regarding the final exam apply strongly to homeworks. Illegible solutions will not be graded.

**Submissions:** Homeworks should be turned in **in person and on time**, during class hours. Requests for exceptions will be scrutinized (see "Excused Absences"). **ALL** homeworks count.

**Note:** Students who do not return or delay returning homeworks take risks regarding their grades; and will be called upon to explain and might be advised to drop the course. **Any request for extension of deadline for homework is subject to university rules for: integrity of the course and close pursuit of its academic goals; and fairness for all students. Thus, I may pose severe restrictions on or even refuse granting an extension, if I deem that accepting the initial request may compromise such rules.**

**GRADING SCHEME:** 45% from **Final Exam**; and 55% from **Homework assignments**.

**Note:** Problems in the Final Exam will be similar to those in homeworks and practice tests.

**Make-up Final Exam:** A proctored, written or oral make-up final exam will be given **ONLY in cases of formally excused absences from the actual exam**. The time and place must be agreed on by instructor and student. **Note:** If the student is registered with the **Accessibility & Disability Service (ADS)**, the student will take a **proctored, written (not oral) make-up final exam at the ADS, if the student proves excused absence**.

**Excused Absences:** If you are absent from a scheduled exam, you **MUST** provide *valid, acceptable, verifiable* documentation about the reason of your absence, **in a timely fashion**, to be allowed to take a make-up exam. **For any medically necessitated absence, you must**

**provide verifiable documentation signed by a qualified health care provider, to take a make-up final exam.** (Documentation or “notes” from nurses, vaguely defined assistants or staff members etc won’t be accepted at first glance and will be scrutinized). The instructor will NOT grant a make-up exam without valid documentation. **Similar rules hold for students asking to be excused from returning homeworks on time or in class.** In case of medical or family emergency, please contact the Instructor as soon as is practical, preferably before the exam. **IF requests for excused absences affect assignments & exams, documentation for justification will be asked strictly. See also “Assignments/Homeworks”.**

**Exams policy:** No calculators are allowed during the exam. Your answers must be adequately supported by mathematical reasoning. Explanations in your test papers must be given in coherent English sentences. Minor algebraic and numerical errors, such as missing a sign, that are not symptomatic of a conceptual misunderstanding will be penalized minimally. Egregious errors, such as  $\frac{1}{a+b} = \frac{1}{a} + \frac{1}{b}$ , will be penalized **severely**.

If you feel that you are entitled to more points on a homework, you may **resubmit your paper** with a note explaining why your grade should be changed. (Since each questioned problem will be very carefully reexamined, it is possible that you could end up losing points in the re-evaluation process.) Any request for re-evaluation is overdue if it is made later than 5 days after the return of the (graded) paper. The Instructor and grader reserve the right to **disregard your paper resubmission if they deem this is overdue**.

**Academic Integrity.** All work that you submit must be your own. You are welcomed to discuss homework material with each other in a general way, but you may not consult any one else’s written work. Any marked similarity between submissions of different authors might be regarded as evidence of academic dishonesty. You must cite any reference you use and mark any quotation or close paraphrase that you include. Such citation will not lower your grade, but extensive quotation might. **Homeworks and the exam should be done individually.**

**Note:** Course assistance websites, such as CourseHero, or AI generated content are NOT allowed as sources, unless the instructor explicitly gives permission. Material taken or copied from these sites can be deemed unauthorized material and a violation of academic integrity.

The University of Maryland, College Park has a nationally recognized Code of Academic Integrity, administered by the Student Honor Council. This Code sets standards for academic integrity at Maryland for all undergraduate and graduate students. As a student you are responsible for upholding these standards for this course. It is very important for you to be aware of the consequences of cheating, fabrication, facilitation, and plagiarism. For more information on the Code of Academic Integrity or the Student Honor Council, please visit <https://policies.umd.edu/student-affairs/university-of-maryland-code-of-student-conduct>

To further exhibit your commitment to academic integrity, remember to sign the Honor Pledge on all examinations: *“I pledge on my honor that I have not given or received any unauthorized assistance on this examination (assignment).”*

**Additional note for AMSC 466/CMSC 466:** You will not be asked to sign such a pledge on assignments, but you are expected to adhere to the principles of the pledge there.

**DISABILITY (ADS) SUPPORT:** Students with documented disabilities should approach me to discuss their accommodations according to policies of the Accessibility & Disability Service (ADS) **in 1st week of classes. I ask these students to make accommodated testing reservations by 2nd week of classes, for ALL exams (see dates above).**

**POLICIES & RESOURCES FOR UNDERGRAD. COURSES:** In general, it is our shared responsibility to know and abide by the UMD's policies. These include topics such as:

Academic integrity; Conduct; Accessibility and accommodations; Harassment;

Attendance and excused absences; Grades and appeals; Copyright and intellectual property. Please visit <http://www.ugst.umd.edu/courserelatedpolicies.html> for the full list of campus-wide policies prepared by the Office of Undergrad. Studies; and ask me if you have questions.

**STUDENT RESOURCES & SERVICES.** Taking personal responsibility for your own learning means acknowledging when your performance does not match your goals and doing something about it. I hope you will come talk to me so that I can help you find the right approach to success in this course; and I encourage you to visit <https://tutoring.umd.edu> to learn more about the wide range of campus resources available to you.

You should also know there is a wide range of resources on campus to support you in various ways (see for example [UMD's Student Resources and Services website](#)).

For confidential counseling, students are advised to visit or contact the [UMD Counseling Center](#) (see <https://counseling.umd.edu>); or [one of many other mental health resources on campus](#).

**COVID-19 related policy:** According to recent communication by the University: “*Wearing a mask is not required while indoors. However, masks are a significant defense against the spread of COVID-19 and other respiratory viruses, so wearing a high-quality mask is recommended while indoors for added protection.*” See <https://www.umd.edu/4Maryland#masks>

**On Excused Absences:** The University policy on excused absences can be found at: <http://www.president.umd.edu/administration/policies/section-v-student-affairs/v-100g>

**RELIGIOUS OBSERVANCES.** If you plan to be absent from class because of religious observances, please submit to Instructor a list of the dates in the first week of classes.