

COMPLEX ANALYSIS – AUTUMN TERM 2020

COURSE INFORMATION

Forms of instruction.

- The course will be given mainly as a series of fourteen lectures – see the schedule below. The lectures will be given face-to-face if possible, but may also be moved online if the situation so demands.
- There will be three online tutorial sessions, on the *14th November, 26th December, and 23rd January*. Additionally, individual consultation is offered on demand.
- Video recordings of the lectures, and lecture notes, will be available for those students who cannot attend in person.

Preliminary schedule.

	Date	Topic	Section
1	5th October	Introduction, complex numbers	1.1, 1.2
2	12th October	Elementary functions	1.3
3	19th October	Limits and continuity, <i>I</i>	1.4
4	26th October	Limits and continuity, <i>II</i>	1.4
5	2nd November	Analytic functions, the Cauchy–Riemann equations	1.5
6	9th November	Derivatives of elementary functions	1.6
7	16th November	Line integrals	2.1
8	30th November	Cauchy’s theorem, <i>I</i>	2.3
9	7th December	Cauchy’s theorem, <i>II</i>	2.3
10	14th December	Cauchy’s integral formula, <i>I</i>	2.4
11	21st December	Cauchy’s integral formula, <i>II</i>	2.4
12	18th January	Series, residue calculus, <i>I</i>	Ch 3, 4
13	25th January	Series, residue calculus, <i>II</i>	Ch 3, 4
14	1st February	Review	
	8th February	Final exam	

“Section” refers to the sections in the textbook by Marsden and Hoffman (see below).

Times and venues.

- The lectures take place on Mondays, 16:30–18:00 in room C13 in the Liberal Arts and Sciences main building. If the university alert level changes, the lectures may be replaced by some kind of online instruction, depending on the circumstances.
- There will be three online tutorial sessions, 16:30–18:00 on *Saturday* the *14th November, 26th December, and 23rd January*.
- Individual consultation (online or face-to-face) is offered on demand. The participants of the course are welcome – and encouraged – to contact the instructor individually for appointments.

Examination. The examination consists of *homework* and a *final exam*.

- The final exam is held on Monday the *8th February*. If university regulations allow it, it will be given as a face-to-face examination on campus. If not, the exam may be given online or in some different form.
- *Homework:* There will be a number of homework assignments during the course. Collaboration in solving the homework is encouraged, but each participating student must submit written solutions individually. Students should be prepared to explain their solution to the teacher on demand.

Grading. A total score (0–100 %) is calculated as the weighted average of the scores obtained on the homework (25 %) and the final exam (75 %). The final grade is determined by the total score, as follows:

F : 0–59 %, C : 60–69 %, B : 70–79 %, A : 80–89 %, S : 90–100 %.

Course withdrawal. Any student who does not participate in the final exam will receive the grade *absent*. It is not necessary to submit a course withdrawal request form.

Recommended textbooks.

- E. Freitag and R. Busam: *Complex Analysis*. Springer-Verlag, Berlin, 2005.
- J. E. Marsden and M. J. Hoffman: *Basic Complex Analysis*. Third edition, W. H. Freeman and Company, New York, 1999.

Repeat exam. There will be a repeat examination of the course during the winter vacation. Under normal circumstances, it takes place in late February or early March, but the details for this year are, due to the pandemic, uncertain.

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