

MAT334 Winter 2022

Complex Variables

University of Toronto

Course overview

course code	MAT334H1-S
webpages	<ul style="list-style-type: none">• Main course webpage: https://www.math.toronto.edu/mayrand/mat334/• Webpage for announcements and material specific to section 5101: http://www.math.toronto.edu/stefand/3442022.html
description	Theory of functions of one complex variable, analytic and meromorphic functions. Cauchy's theorem, residue calculus, conformal mappings, introduction to analytic continuation and harmonic functions.
prerequisites	MAT223H1/MATA23H3/MAT223H5/MAT240H1/MAT240H5, MAT235Y1/MAT235Y5/(MAT232H5, MAT236H5)/(MATB41H3, MATB42H3)/MAT237Y1/(MATB41H3, MATB42H3, MATB43H3)/MAT237Y5/MAT257Y1
textbook	Fisher, S. D. <i>Complex variables</i> . Second edition. Dover Publications, Inc., Mineola, NY, 1999.
course content	The plan is to cover chapters 1, 2, and 3 of the textbook.
organization	Lectures and tutorials are in person, except for the first three weeks of the course which will take place entirely online via Zoom links to be found on the course Quercus page . There are three hours of lectures and one hour of tutorial per week. We will use the following platforms. Quercus: https://q.utoronto.ca/courses/254719 Crowdmark: https://crowdmark.com/ Piazza: https://piazza.com/utoronto.ca/winter2022/mat334 Zoom: https://zoom.us/

Please note that due to the ongoing COVID-19 pandemic, the course delivery method may change after term has started and this may alter the course organization. Students are expected to check the course site for updates as the contents of this syllabus may change.

- technical requirement** In order to participate in this course, students will be required to have:
- Reliable internet access. It is recommended that students have a high speed broadband connection (LAN, Cable, or DSL) with a minimum download speed of 5 Mbps.
 - A computer satisfying the minimum technical requirements: <https://www.viceprovoststudents.utoronto.ca/covid-19/tech-requirements-online-learning/>
- Other recommended items include headphones, microphone, webcam, and a tablet or printer.
- If you are facing financial hardship, you are encouraged to contact your college or divisional registrar (<https://future.utoronto.ca/current-students/registrars/>) to apply for an emergency bursary.

Instructors

name	email	section	office hour (online on Zoom)
Maxence Mayrand	mayrand@math.toronto.edu	LEC0101	Friday 13:30–14:30
Stefan Dawydiak	stefand@math.utoronto.ca	LEC5101	Wednesday 11:00–12:00

Email is the preferred method of communication.

Students will find Zoom links for the office hours on [the course Quercus page](#).

Lectures

LEC0101 — Maxence Mayrand

time	Tuesday 12:00–14:00 Thursday 12:00–13:00
first lecture	Tuesday, January 11, 2022
last lecture	Thursday, April 7, 2022
room	MP 102

LEC5101 — Stefan Dawydiak

time	Tuesday 18:00–21:00
first lecture	Tuesday, January 11, 2022
last lecture	Tuesday, April 5, 2022
room	MP 202

Teaching assistants

name	email	tutorials	office hour
Chao An	chao.an@mail.utoronto.ca	TUT0301	Fri 13:00–13:30
Lemonte Alie-Lamarche	lemonte@math.utoronto.ca	TUT0101 & TUT0201	Thu 13:30–14:00
Wenkui Du	wenkui.du@mail.utoronto.ca	None	Wed 9:00–9:30
Nathan Gurrin-Smith	nathan.gurrin-smith@mail.utoronto.ca	TUT0401 & TUT0501	Thu 18:00–18:30
Daniel Spivak	daniel.spivak@mail.utoronto.ca	TUT5102 & TUT0601	Fri 16:00–16:30
Oliver Trevett	oliver.trevett@mail.utoronto.ca	TUT5101 & TUT5201	Tue 11:00–11:30

Office hours will be online, via Zoom links to be found on [the course Quercus page](#).

Tutorials

sections	time	room	TA
TUT0101	Tuesday 14:00–15:00	GB 304	Alie-Lamarche
TUT0201	Tuesday 15:00–16:00	SS 1084	Alie-Lamarche
TUT0301	Tuesday 16:00–17:00	AB 107	An
TUT0401	Wednesday 10:00–11:00	RW 143	Gurrin-Smith
TUT0501	Wednesday 14:00–15:00	CR 405	Gurrin-Smith
TUT0601	Wednesday 15:00–16:00	SF 2202	Spivak
TUT5101	Tuesday 17:00–18:00	HS 108	Trevett
TUT5102	Tuesday 17:00–18:00	RW 142	Spivak
TUT5201	Wednesday 17:00–18:00	SS 1072	Trevett

During the tutorials, TAs will explain solutions to some exercises, answer students questions, and review the relevant course material.

Tutorials start in the second week of the term (Jan 17—Jan 21) and continue every week until the last week of the term (Apr 4—Apr 8), except for the reading week (Feb 21—Feb 25).

Tentative schedule

week	textbook section	evaluation	note
Jan 10—Jan 16	1		
Jan 17—Jan 23	1	Test 1	First tutorial
Jan 24—Jan 30	1	Test 2	
Jan 31—Feb 06	1, 2	Test 3	First in-person lectures and tutorials
Feb 07—Feb 13	2	Test 4	
Feb 14—Feb 20	2	Test 5	
Feb 21—Feb 27			Reading week: no lecture and no tutorial
Feb 28—Mar 06	2	Test 6	
Mar 07—Mar 13	2	Test 7	Test 7 is in-person
Mar 14—Mar 20	3	Test 8	
Mar 21—Mar 27	3	Test 9	Test 9 is in-person
Mar 28—Apr 03	3	Test 10	Test 10 is in-person
Apr 04—Apr 10	3	Test 11	Last tutorial

Marking scheme

There will be 11 weekly tests, the lowest of which will be dropped. The remaining 10 tests will each count for 10% of the final grade. There are no problem sets or term tests, and there is no final exam.

Three tests will be administered in-class, the remainder will be administered asynchronously online and submitted via Crowdmark. Online tests will be available to be opened for 24 hours, and must be completed within two hours of opening. The test dates are as follows:

Test number	Online/in-person and in-class	Times available	Duration
Test 1	Online	00:01–23:59 Monday, January 17	2 hours
Test 2	Online	00:01–23:59 Monday, January 24	2 hours
Test 3	Online	00:01–23:59 Monday, January 31	2 hours
Test 4	Online	00:01–23:59 Monday, February 7	2 hours
Test 5	Online	00:01–23:59 Monday, February 14	2 hours
Test 6	Online	00:01–23:59 Monday, February 28	2 hours
Test 7	In-person	Tuesday, March 8, in class	1 hour
Test 8	Online	00:01–23:59 Monday, March 14	2 hours
Test 9	In-person	Tuesday, March 22, in class	1 hour
Test 10	In-person	Tuesday, March 29, in class	1 hour
Test 11	Online	00:01–23:59 Monday, April 4	2 hours

submission The online tests will be sent to you via [Crowdmark](#). No other submission method for the online tests will be accepted.

The easiest way to upload your test is to use a scanner, but if you don't have access to one, you can also use a scanner app on your phone. Make sure that your work is legible before submitting it; otherwise, it will not be accepted.

The in-person, in-class tests will be written on paper and collected after the test.

missed tests There will be no make-up tests. For students who missed a test because of illness or any other approved legitimate reason, its weight will be transferred evenly to the remaining tests.

solutions Written solutions are not provided, but some of them will be discussed in tutorials. You are encouraged to consult with TAs, your fellow students, and the instructors to identify shortcomings in your grasp of the material.

plagiarism **You may not collaborate with other students on any of the tests.** Your submissions must be your own work, written independently, in your own words. Otherwise, it will be considered an offence under the University of Toronto's [Code of Behaviour on Academic Matters](#) (see section B.I.) and serious sanctions will be applied.

Discussion forum

We will use [Piazza](#), which is a discussion forum where you can ask as many questions as you like, and will receive answers from other students, the TAs, or the instructors.

To join the forum, go to [piazza.com](#) and search for MAT334. You will also get an email invitation at the beginning of the course. Alternatively, you can sign up at this link:

<https://piazza.com/utoronto.ca/winter2022/mat334>

Course Policies

Turnitin

Turnitin may be used for detecting plagiarism in some of the written work submitted in this course. Normally, students will be required to submit written work to Turnitin.com for a review of textual similarity and detection of possible plagiarism. In doing so, students will allow their essays to be included as source documents in the Turnitin.com reference database, where they will be used solely for the purpose of detecting plagiarism. The terms that apply to the University's use of the Turnitin.com service are described on the Turnitin.com web site.

Email Policy

Should you have a question that is not answered on the course site (please check there first!) please note that all communications with the Course Instructor or TA's must be sent from your official utoronto email address, with the course number included in the subject line. If these instructions are not followed, your email may not be responded to.

Mathematics Department Policy on Wearing Masks in Class

Masks are an inexpensive and effective measure that limits the spread of COVID and will facilitate the return to normal life as quickly as possible. Failure to wear a mask properly entails unnecessary risks to public health and may disrupt learning by creating unwelcome distractions. It is the policy of the Math Department that in-person instruction cannot take place unless all students are wearing a mask that covers both mouth and nose, with exceptions only for students who have received documented exemptions.

As with other accommodations, any student who has an official exemption from wearing a mask is expected inform the instructor BEFORE classes begin by providing documentation.

This policy is in line with the University's mask requirement: https://www.provost.utoronto.ca/planning-policy/joint-provostial-and-human-resources-guideline-on-facemasks-at-the-university-of-toronto/#section_0

Institutional Policies and Support

Academic Integrity

All suspected cases of academic dishonesty will be investigated following procedures outlined in the [Code of Behaviour on Academic Matters](#). If you have questions or concerns about what constitutes appropriate academic behaviour or appropriate research and citation methods, please reach out to your Course Instructor. Note that you are expected to seek out additional information on academic integrity from me or from other institutional resources (for example, the University of Toronto website on [Academic Integrity](#)).

Copyright

This course, including your participation, will be recorded on video and will be available to students in the course for viewing remotely and after each session.

Course videos and materials belong to your instructor, the University, and/or other sources depending on the specific facts of each situation and are protected by copyright. Do not download, copy, or share any course or student materials or videos without the explicit permission of the instructor.

For questions about the recording and use of videos in which you appear, please contact your instructor.

Accessibility

The University provides academic accommodations for students with disabilities in accordance with the terms of the Ontario Human Rights Code. This occurs through a collaborative process that acknowledges a collective obligation to develop an accessible learning environment that both meets the needs of students and preserves the essential academic requirements of the University's courses and programs. Students with diverse learning styles and needs are welcome in this course. If you have a disability that may require accommodations, please feel free to approach your Course Instructor and/or the Accessibility Services office as soon as possible. The sooner you let us know your needs the quicker we can assist you in achieving your learning goals in this course.

Link to Accessibility Services website: <https://studentlife.utoronto.ca/department/accessibility-services/>

Equity, Diversity and Inclusion The University of Toronto is committed to equity, human rights and respect for diversity. All members of the learning environment in this course should strive to create an atmosphere of mutual respect where all members of our community can express themselves, engage with each other, and respect one another's differences. U of T does not condone discrimination or harassment against any persons or communities.

Important Academic Dates & Deadlines

The academic dates include enrolment dates, drop deadlines, exam periods, petition deadlines and more.

<https://www.artsci.utoronto.ca/current/dates-deadlines/academic-dates>

Other Academic and Personal Supports

- Writing Centre <https://writing.utoronto.ca/writing-centres/arts-and-science/>
- U of T Libraries <https://onesearch.library.utoronto.ca/>
- Feeling Distressed? <https://studentlife.utoronto.ca/task/support-when-you-feel-distressed/>
- Academic Success Centre <https://studentlife.utoronto.ca/department/academic-success/>
- College/Faculty Registrars <https://future.utoronto.ca/current-students/registrar/>