



TEXTBOOK

Class notes, homework and exercises are distributed in class and posted.

ORGANISATION

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CA'S

TBA

CLASSES

This is a small single section course taught online in one section.

Classes meet on Monday, Wednesday and Fridays at 10:30 AM Zoom.

First class: January 25, 2021

MQC

Online TBA

EXAM DATES

1.EXAM	2.EXAM	FINAL
MAR 5	APR 9	MAY
ONLINE	ONLINE	ONLINE

GRADES

PART	PERCENTAGE
1. HOURLY	15
2. HOURLY	15
HOMEWORK	30
PROJECT	10
FINAL	30

Harvard University Spring 2021

MATH 1A

SYLLABUS 2021

While the ideas of calculus already trace back to the time of ancient Greece, the subject exploded into a powerful tool during the last few centuries. It is now an important theoretical foundation for other mathematical areas and scientific fields. It is no exaggeration to say that the art of calculus is one of most amazing scientific and cultural achievements of humanity.

At the core we have differential and integral calculus. Differential calculus studies "change", integral calculus deals with "accumulation". The fundamental theorem of calculus links the two. The subject is very applicable to problems from other scientific disciplines. Calculus is not only important because of its content and applications like life sciences (example: tomography), data science (example: compute correlations), internet (example: networks), artificial intelligence (example: machine learning), geography (example: data visualization), movie and game industry (computer graphics), the ideas of calculus also enter in disguised form, in statistics, economics, computer science, in art or music theory.

While an important point is that calculus can appear in different forms, we primarily also want to learn the nuts and bolts and down to earth techniques.

CALENDAR

S	M	T	W	T	F	S
24	25	26	27	28	29	30
31	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31
2	3	4	5	6	7	8

SYLLABUS

1	What is Calculus?	
2	Functions	18
3	Limits	19
		20
4	Continuity	
5	Intermediate Value theorem	21
	Wellness day	22
		23
6	A fundamental idea	
7	Rate of Change	
8	Derivative of a function	24
		Wellness day
	Presidents day	25
9	Product and quotient rule	
10	Chain rule	26
		27
11	Critical points and extrema	
12	Global extrema	Second exam
13	Hopital rule	
	Wellness day	28
14.	Newton Method	29
	First exam	30
		31
15	Catastrophe theory	32
16	Integrals	33
17	Fundamental Theorem	
		37
		Review