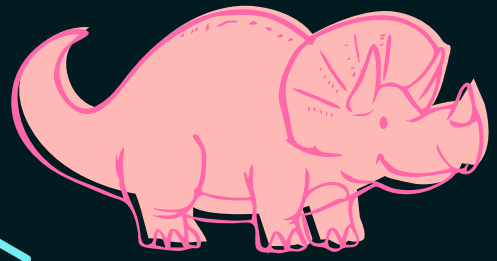
Calculus 1

is not as old as you think



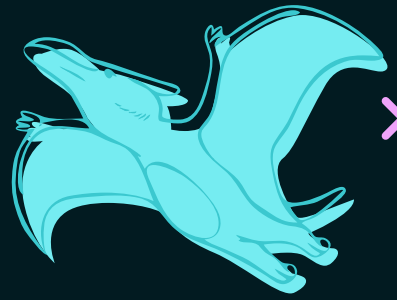


TABLE OF CONTENTS

Learning Contract

This is not a subtitle ofc.

Learning contract

During class

Sleeping
Eating
Open learning material

Outside the class

Ask questions
Learn from other sources

Cheating

No cheating in any form

Do you really need the grade that much?

2

OVERVIEW

This, again, is not a subtitle alright.

How we conduct

Online Meeting

1. Two sessions of online meeting on Mon and Tue
2. Question during meeting

Delayed Discussion

Forum (elok), Group Chat

Asynchronous Media

Elok, Blog, YouTube
Handout(?)

assessment

Quiz, assignment, exam

3

OVERVIEW

This, again, is not a subtitle alright.

ABOUT THE TOPIC

The course will cover about the system of real numbers, functions and their graph, the limit of a function, the derivative, and their applications.

https://s1math.fmipa.ugm.ac.id/en/list-of-courses/

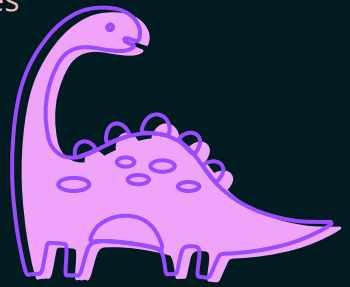
Topics Before Mid

Real numbers:

- Properties of real numbers
- Operation on real numbers
- Inequalities
- Absolute value
- Intervals
- Coordinates System
- Cartesian Coordinates
- Polar Coordinates

Functions:

- Definition
- Operations
- Type of functions



Limits:

- Motivation
- Numerical Approximations
- Definitions
- Algebraic Theorem of Limits
- Squeeze Theorem
- One sided limits
- Limits Involving Trigonometric Functions
- Limits at infinity
- Infinite Limits
- Limits of sequences
- Natural number e as a limits
- Limits involving e
- Continuity of Functions

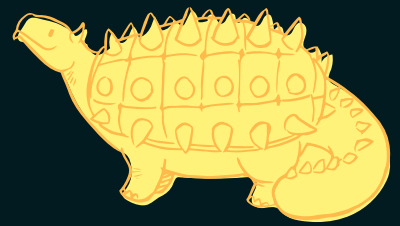
Topics after mid

Derivatives:

- Motivations
- Definition
- Power Rule
- Derivatives of addition and subtraction
- Derivatives of multiplication and division
- Derivatives of compositions and Chain Rule
- Derivatives of Inverse of a Function
- Derivatives of Trigonometric Function
- Derivatives of Cyclometric Functions
- Derivatives of Logarithmic Functions
- Derivatives of Exponential Functions
- Derivatives of Hyperbolic Functions (?)
- Derivatives of Parametric Functions
- Derivatives of Implicit Functions
- Derivatives with Logarithm
- Higher Derivatives
- Differentials

Application of derivatives:

- Geometric meaning of derivatives
- Physical aspect of derivatives
- Maximum and Minimum
- Critical Points
- Extreme values
- Theorem of Extreme Values
- Rolle's Theorem
- Mean Value Theorem
- Convexity of a functions
- Inflection Points
- First Derivatives Test
- Second Derivatives Test
- Asimptot
- Graphing Functions (using Calculus)
- Practical Problems on Extreme Value
- Taylor Series
- MacLaurin Series
- L'Hospital Rules
- MacLaurin Series on Limits



References

References from Module Handbook

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- A. Mizrahi and Sullivan, 1982,Calculus and Analytic Geometry,Warsworth Publishing Comp.
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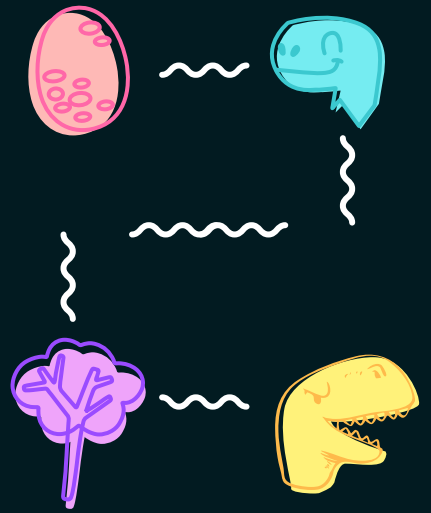
- Tim Pengajar Kalkulus, 2003,Diktat Kuliah Kalkulus I, FMIPA UGM



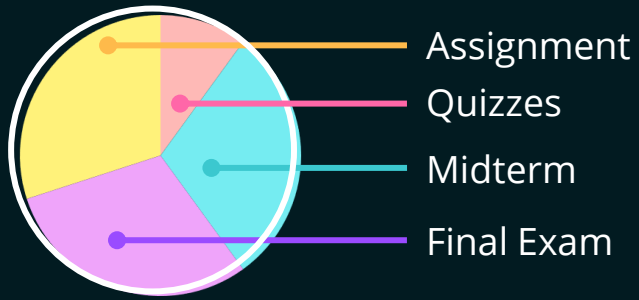
4

Assesment

How do we do the assesment

Our assignment

Never ever trust pie chart



This is how we usually conduct based on module handbook

proportion

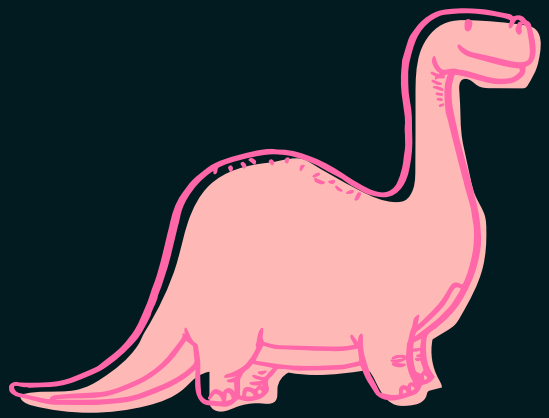

A PICTURE
IS WORTH A
THOUSAND
WORDS

3 CREDITS

is the weight of this course

3x50 MIN

is the amount of time in a week you must invest



834,612,795

Big numbers that actually means nothing

THANKS!

Do you have any questions?
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ALTERNATIVE RESOURCES


slidesgo