

MODULE HANDBOOK

ADVANCED MATHEMATICS



**STATISTICS UNDERGRADUATE PROGRAM
DEPARTMENT OF STATISTICS
FACULTY OF SCIENCE AND DATA ANALYTICS
INSTITUT TEKNOLOGI SEPULUH NOPEMBER
SURABAYA**

ENDORSEMENT PAGE



**MODULE HANDBOOK
ADVANCED MATHEMATICS
STATISTICS UNDERGRADUATE PROGRAM
DEPARTMENT OF STATISTICS
INSTITUT TEKNOLOGI SEPULUH NOPEMBER**

Proses <i>Process</i>	Penanggung Jawab <i>Person in Charge</i>			Tanggal <i>Date</i>
	Nama <i>Name</i>	Jabatan <i>Position</i>	Tanda tangan <i>Signature</i>	
Perumus <i>Preparation</i>	Shofi Andari, Ph.D.	Dosen Lecturer		
Pemeriksa dan Pengendalian <i>Review and Control</i>	Shofi Andari, Ph.D.; Dr. Purhadi, M.Sc	Tim kurikulum Curriculum team		
Persetujuan <i>Approval</i>	Prof. Dr. Bambang Widjanarko Otok, M.Si.	Koordinator RMK Course Cluster Coordinator		
Penetapan <i>Determination</i>	Dr. Kartika Fithriasari, M.Si	Kepala Departemen Head of Department		

MODULE HANDBOOK

ADVANCED MATHEMATICS

Module name	ADVANCED MATHEMATICS	
Module level	Undergraduate	
Code	SS234312	
Course (if applicable)	ADVANCED MATHEMATICS	
Semester	3	
Person responsible for the module	Shofi Andari, Ph.D.	
Lecturer	Shofi Andari, Ph.D.; Dr. Purhadi, M.Sc	
Language	Bahasa Indonesia and English	
Relation to curriculum	Undergraduate degree program, mandatory, 3rd semester.	
Type of teaching, contact hours	Case Method (12,5%) Other SCL Methods(87,5%)	
Workload	1. Lectures[L]: 3 x 50 = 150 minutes per week. 2. Exercises and Assignments[EA]: 3 x 60 = 180 minutes (3 hours) per week. 3. Independent Learning [IL]: 3 x 60 = 180 minutes (3 hours) per week.	
Credit points	4 credit points (sks), equivalent to 6.4 ECTS	
Requirements according to the examination regulations	A student must have attended at least 80% of the lectures to sit in the exams.	
Mandatory prerequisites	Calculus II	
Learning outcomes and their corresponding PLOs	<p>CLO-1 Masters mathematical concepts and can solve problems consisting of: the set of complex numbers, ordinary differential equations (PD), separate variables, functions of several variables, gradient calculations, total differentials, implicit functions, maximum, minimum, and their application in parameter estimation (maximum likelihood estimation or ordinary least square)</p> <p>CLO-2 Mastering the concept and solving problems in multivariable functions (including cylindrical coordinates and spherical coordinates) using partial differentials and double integrals, variable transformations, their application in Gamma function integrals, and optimization problems in closed form functions.</p> <p>CLO-3 Masters the concept of advanced differential equations and is able to determine solutions to problems of homogeneous PD, PD</p>	<p>PLO-4</p> <p>PLO-5</p>

	extract, integrating factor, level one linear PD, Bernoulli PD, and its applications CLO-4 Able to analyze the relationship between these mathematical concepts and mathematical statistical theory and corresponding statistical methods	
Content	Advanced mathematics is one of the basic courses that is part of the field of study in mathematics. The purpose of studying advanced mathematics is to master the concepts of complex number systems, ordinary differential equations, functions of several variables, maximum, minimum, coordinate systems and folding integrals as well as applications in statistical methods so that students will have a learning experience to think critically and be able to give the right decisions about the use of these concepts in statistical applications. The learning strategies used are discussions, practice questions, and assignments..	
Assessment and its weight	Assignment & Test I – 20% Midterm Exam – 30% Assignment & Test II – 20% Final Exam– 30%	
Media employed	LCD, whiteboard, websites (myITS Classroom), zoom	
Reading list	<ol style="list-style-type: none"> 1. Anton, H., 1999. Calculus with analytic Geomery. 6th edition. Singapore: John Wiley dan Sons, Inc. 2. Erwin KreysZigh, 1983. Advanced Engineering Mathematics. 7th edition. 3. Purcell., 2000. Kalkulus dan Geometri Analsis. jilid I dan II. 4. Purcell, J.E. and Rignon., 2000. Calculus. 8th edition. Prentice Hall. 5. Salas SL, Hille e, 1982. Calculus of One and Several Variables.4th edition. New York: Jhon Wiley 	



INSTITUT TEKNOLOGI SEPULUH NOPEMBER
FAKULTAS SAINS DAN ANALITIKA DATA
PROGRAM STUDI SARJANA STATISTIKA
DEPARTEMEN STATISTIKA

Kode Dokumen

RENCANA PEMBELAJARAN SEMESTER/
SEMESTER LEARNING PLAN

MATA KULIAH (MK)/ <i>Course</i>	KODE/ <i>Code</i>	Rumpun MK/ <i>Course Group</i>	BOBOT (sks)/ <i>Weight (credit)</i>		SEMESTER/ <i>Semester</i>	Tgl Penyusunan/ <i>Drafting Date</i>
MATEMATIKA LANJUT/ <i>ADVANCED MATHEMATICS</i>	SS234312	LINGKES	T=4	P=	III	17 Desember 2022
OTORISASI/ <i>AUTHORIZATION</i>	Pengembang RPS/ <i>RPS Developer</i>		Koordinator RMK/ <i>Course Group Coordinator</i>		Ketua PRODI/ <i>Head of Department</i>	
	Shofi Andari, Ph.D.; Dr. Purhadi, M.Sc; Dr. Wibawati, M.Si.		Prof. Dr. Bambang Widjanarko Otok, M.Si;		Dr. Kartika Fithriasari, M.Si	
Capaian Pembelajaran (CP)/ <i>Learning Achievement</i>	CPL-PRODI yang dibebankan pada MK/ <i>PLO</i>					
	CPL-4	Mampu menerapkan sains dan matematika untuk mendukung pemahaman metode statistika				
	CPL-5	Mampu menerapkan teori statistika pada metode statistika				
	<i>PLO-4</i> <i>PLO-5</i>	<i>Able to apply science and mathematics to support the understanding of statistical methods</i> <i>Able to apply statistical theory to statistical methods</i>				
	Capaian Pembelajaran Mata Kuliah (CPMK)/ <i>CLO</i>					
	CPMK-1 Menguasai konsep matematika dan dapat menyelesaikan permasalahan yang terdiri atas: himpunan bilangan kompleks, persamaan diferensial (PD) biasa, variabel terpisah, fungsi beberapa variabel, perhitungan gradien, diferensial total, fungsi implisit, maximum, minimum, dan aplikasinya dalam penaksiran parameter (<i>maximum likelihood estimation</i> atau <i>ordinary least square</i>)					
	CPMK-2 Menguasai konsep dan mampu menyelesaikan permasalahan dalam fungsi multivariabel (termasuk koordinat silinder dan koordinat bola) menggunakan diferensial parsial dan integral rangkap, transformasi variable, aplikasinya dalam integral fungsi					

	<p>Gamma, serta problem optimasi dalam fungsi <i>closed form</i>.</p> <p>CPMK-3 Menguasai konsep persamaan diferensial lanjut dan mampu menentukan solusi untuk permasalahan PD homogen, PD ekstrak, faktor pengintegral, PD linear tingkat satu, PD Bernoulli, dan aplikasinya</p> <p>CPMK-4 Mampu menganalisis hubungan antara konsep matematika tersebut dengan teori statistik matematika dan metode statistika yang bersesuaian</p> <p><i>CLO-1 Masters mathematical concepts and can solve problems consisting of: the set of complex numbers, ordinary differential equations (PD), separate variables, functions of several variables, gradient calculations, total differentials, implicit functions, maximum, minimum, and their application in parameter estimation (maximum likelihood estimation or ordinary least square)</i></p> <p><i>CLO-2 Mastering the concept and solving problems in multivariable functions (including cylindrical coordinates and spherical coordinates) using partial differentials and double integrals, variable transformations, their application in Gamma function integrals, and optimization problems in closed form functions.</i></p> <p><i>CLO-3 Masters the concept of advanced differential equations and is able to determine solutions to problems of homogeneous PD, PD extract, integrating factor, level one linear PD, Bernoulli PD, and its applications</i></p> <p><i>CLO-4 Able to analyze the relationship between these mathematical concepts and mathematical statistical theory and corresponding statistical methods</i></p>															
	<p>Matrik CPL – CPMK <i>PLO-CLO Matrix</i></p> <table border="1" data-bbox="616 821 1612 989"> <thead> <tr> <th>CPMK</th> <th>CPL-4</th> <th>CPL-5</th> </tr> </thead> <tbody> <tr> <td>CPMK-1</td> <td>v</td> <td>v</td> </tr> <tr> <td>CPMK-2</td> <td>v</td> <td>v</td> </tr> <tr> <td>CPMK-3</td> <td>v</td> <td></td> </tr> <tr> <td>CPMK-4</td> <td>v</td> <td>v</td> </tr> </tbody> </table>	CPMK	CPL-4	CPL-5	CPMK-1	v	v	CPMK-2	v	v	CPMK-3	v		CPMK-4	v	v
CPMK	CPL-4	CPL-5														
CPMK-1	v	v														
CPMK-2	v	v														
CPMK-3	v															
CPMK-4	v	v														
<p>Deskripsi Singkat MK/ <i>Course Description</i></p>	<p>Matematika lanjut merupakan salah satu mata kuliah dasar yang merupakan bagian dari bidang kajian dalam matematika. Tujuan mempelajari matematika lanjut adalah untuk menguasai konsep sistem bilangan kompleks, persamaan differensial biasa, fungsi beberapa variabel, maksimum, minimum, sistem koordinat dan integral lipat serta aplikasi dalam metode statistika sehingga mahasiswa akan memiliki pengalaman belajar untuk berfikir secara kritis dan mampu memberikan keputusan yang tepat tentang penggunaan konsep tersebut dalam aplikasi kestatistikaan. Strategi pembelajaran yang digunakan adalah diskusi, Latihan soal, dan tugas.</p> <p><i>Advanced mathematics is one of the basic courses that is part of the field of study in mathematics. The purpose of studying advanced mathematics is to master the concepts of complex number systems, ordinary differential equations, functions of several variables, maximum, minimum, coordinate systems and folding integrals as well as applications in statistical methods so that students will have a learning experience to think critically and be able to give the right decisions about the use of these concepts in statistical applications. The learning</i></p>															

	<i>strategies used are discussions, practice questions, and assignments.</i>						
Bahan Kajian: Materi Pembelajaran/ Course Material	Dasar Sains, Teori Statistika, Pengumpulan Data, Deskripsi dan Eksplorasi, Komputasi dan Data Processing, dan Pemodelan <i>Basic Science, Statistical Theory, Data Collection, Description and Exploration, Computational and Data Processing, and Modeling</i>						
Pustaka/ References	Utama/Primary:						
	1. Anton, H., 1999. Calculus with analytic Geomery. 6th edition. Singapore: John Wiley dan Sons, Inc.						
	Pendukung/Secondary:						
	1. Erwin KreysZigh, 1983. Advanced Engineering Mathematics. 7th edition. 2. Purcell., 2000. Kalkulus dan Geometri Analsis. jilid I dan II. 3. Purcell, J.E. and Rignon., 2000. Calculus. 8th edition. Prentice Hall. 4. Salas SL, Hille e, 1982. Calculus of One and Several Variables.4th edition. New York: Jhon Wiley.						
Dosen Pengampu/ Lecturers	Dr. Wibawati, M.Si; Dr. Purhadi, M.Sc.; Shofi Andari, Ph.D.						
Matakuliah syarat/ Pre-requisite Course	Kalkulus II <i>Calculus II</i>						
Mg Ke- Week	Kemampuan akhir tiap tahapan belajar (Sub-CPMK) <i>Final capability for each learning step</i>	Penilaian <i>Evaluation</i>		Bantuk Pembelajaran, Metode Pembelajaran, Penugasan Mahasiswa, [Estimasi Waktu] <i>Learning Format Learning Methods Assignment for Student [Estimated Time]</i>		Materi Pembelajaran [Pustaka] <i>Learning Material [References]</i>	Bobot Penilaian (%) <i>Evaluation Weight (%)</i>
		Indikator <i>Indicator</i>	Kriteria & Bentuk <i>Criteria and Format</i>	Luring <i>Offline</i>	Daring <i>Online</i>		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

1	<p>Mampu menjelaskan konsep himpunan sistem bilangan kompleks dan aplikasinya dalam statistika.</p> <p><i>Able to explain the concept of himpunan sistem complex numbers and its application in statistics</i></p>	<p>a. Dapat menjelaskan tentang himpunan sistem bilangan kompleks</p> <p>b. Dapat menjelaskan tentang operasi pada bilangan kompleks</p> <p>c. Dapat menjelaskan tentang bilangan kompleks dalam bentuk polar dan gambar</p> <p><i>a. Can explain about the set of complex number systems</i></p> <p><i>b. Can explain operations on complex numbers</i></p> <p><i>c. Can explain about complex numbers in polar form and images</i></p>	<p>Tugas 1, tes tulis, observasi di kelas</p> <p><i>Task 1, written test, observation in the classroom</i></p>	<p>Ceramah, diskusi dan latihan soal</p> <p><i>Lectures, Discussion, Exercise</i></p> <p>TM: 2x2x50" LT: 2x2x60" BM: 2x2 x60"</p>		<p>Himpunan sistem bilangan kompleks dan aplikasi dalam statistika</p> <p><i>The set of complex number systems and applications in statistics</i></p>	5%
2	<p>Mampu menjelaskan konsep himpunan sistem bilangan kompleks dan aplikasinya dalam statistika.</p> <p><i>Able to explain the concept of himpunan sistem complex numbers and its application in statistics.</i></p>	<p>a. Dapat menjelaskan tentang akar- akar pertidaksamaan bilangan kompleks.</p> <p>b. Dapat menjelaskan tentang fungsi dari bilangan Kompleks.</p> <p>c. Dapat menjelaskan tentang aplikasi bilangan kompleks dalam statistika misal fungsi karakteristik dari variabel random.</p> <p><i>a. Can explain about the roots of complex numbers.</i></p> <p><i>b. Can explain about the function of complex numbers.</i></p> <p><i>c. Can explain the application of complex numbers in statistics e.g. characteristic functions of random variables</i></p>	<p>Tugas 1, tes tulis, observasi di kelas</p> <p><i>Task 1, written test, observation in the classroom</i></p>	<p>Ceramah, diskusi dan latihan soal</p> <p><i>Lectures, Discussion, Exercise</i></p> <p>TM: 2x2x50" LT: 2x2x60" BM: 2x2 x60"</p>		<p>Himpunan sistem bilangan kompleks dan aplikasi dalam statistika</p> <p><i>The set of complex number systems and applications in statistics</i></p>	5%

3	<p>Mampu menentukan solusi Persamaan differensial biasa</p> <p><i>Able to determine the solution of ordinary differential equations</i></p>	<p>a. Dapat menghitung dan menerangkan konsep persamaan differensial biasa (PDB) pada masalah di dunia nyata.</p> <p>b. Dapat menerangkan konsep untuk mendapatkkan solusi PDB dengan variabel terpisah.</p> <p><i>a. Can calculate and explain the concept of ordinary differential equations (PDB) on problems in the real world</i></p> <p><i>b. Can explain the concept of getting a GDP solution with separate variables</i></p>	<p>Tugas 2, tes tulis, observasi di kelas</p> <p><i>Task 2, written test, obreservation in the classroom</i></p>	<p>Ceramah, diskusi dan latihan soal</p> <p><i>Lectures, Discusssion, Exercise</i></p> <p>TM: 2x2x50" LT: 2x2x60" BM: 2x2x60"</p>		<p>Persamaan differensial biasa (PDB), variabel terpisah, PD homogen, PD ekstrak, faktor pengintegral, PD linear tingkat satu, PD Bernoulli, aplikasi dalam statistika</p> <p><i>Ordinary differential equation (PDB), separate variables, homogeneous PD, PD extract, integrating factor, level one linear PD, Bernoulli PD, application in statistics</i></p>	5%
4	<p>Mampu menentukan solusi Persamaan differensial biasa</p> <p><i>Able to determine the solution of ordinary differential equations</i></p>	<p>a. Dapat menerangkan konsep PD homogen, PD eksak, faktor pengintegral.</p> <p>b. Dapat menerangkan dan mendapatkan solusi PD linear tingkat satu, PD Bernoulli, PD linear tingkat dua.</p> <p>c. Dapat mengaplikasikan berbagai fungsi dalam statistika</p> <p><i>a. Can explain the concept of homogeneous PD, exact PD, integrating factors.</i></p> <p><i>b. Can describe and obtain solutions of level one linear PD, Bernoulli PD, second level linear PD.</i></p> <p><i>c. Can apply various functions in statistics</i></p>	<p>Tugas 2, tes tulis, observasi di kelas</p> <p><i>Task 2, written test, obreservation in the classroom</i></p>	<p>Ceramah, diskusi dan latihan soal</p> <p><i>Lectures, Discusssion, Exercise</i></p> <p>TM: 2x2x50" LT: 2x2x60" BM: 2x2x60"</p>		<p>Persamaan differensial biasa (PDB), variabel terpisah, PD homogen, PD ekstrak, faktor pengintegral, PD linear tingkat satu, PD Bernoulli, aplikasi dalam statistika</p> <p><i>Ordinary differential equation (PDB), separate variables, homogeneous PD, PD extract, integrating factor, level one linear PD, Bernoulli PD, application in statistics</i></p>	5%

5	<p>Mampu menentukan gradien, differensial total, fungsi implisit, aplikasi dalam statistika</p> <p><i>Able to determine gradient, total differential, implicit function, application in statistics</i></p>	<p>a. Dapat definisi Fungsi beberapa variabel dan mengambar.</p> <p>b. Dapat menjelaskan tentang perhitungan gradien dan differensial total</p> <p>c. Dapat menjelaskan tentang persamaan bidang.</p> <p>d. Dapat mengetahui perbedaan turunan fungsi eksplisit dan fungsi implisit</p> <p>e. Dapat menjelaskan aplikasi dalam statistika Misal fungsi distribusi peluang gabungan, fungsi likelihood.</p> <p><i>a. Can function multiple variables and draw.</i></p> <p><i>b. Can explain about gradient and total differential calculations</i></p> <p><i>c. Can explain about the equation of the field.</i></p> <p><i>d. Can know the difference between derivatives of explicit functions and implicit functions</i></p> <p><i>e. Can explain applications in statistics For example combined opportunity distribution functions, likelihood functions.</i></p>	<p>Tugas 3, tes tulis, observasi di kelas</p> <p><i>Task 3, written test, obreservation in the classroom</i></p>	<p>Ceramah, diskusi dan latihan soal</p> <p><i>Lectures, Discusssion, Exercise</i></p> <p>TM: 2x2x50"</p> <p>LT: 2x2x60"</p> <p>BM: 2x2x60"</p>		<p>Fungsi beberapa variabel : perhitungan gradien, differensial total, fungsi implisit, aplikasi dalam statistika</p> <p><i>Functions of several variables : gradient calculation, total differential, implicit functions, application in statistics</i></p>	10%
6	<p>Mampu menentukan titik maksimum, minimum, aplikasi dalam statistika</p> <p><i>Able to determine the point of maksimum,</i></p>	<p>a. Dapat menerangkan konsep maximum, Minimum fungsi beberapa variabel.</p> <p>b. Dapat menerangkan</p>	<p>Tugas 4, tes tulis, observasi di kelas</p> <p><i>Task 4, written test, obreservation in</i></p>	<p>Ceramah, diskusi dan latihan soal</p> <p><i>Lectures, Discusssion, Exercise</i></p>		<p>Fungsi beberapa variabel : maximum, minimum, aplikasi dalam statistika</p> <p><i>Functions of several variables : maximum,</i></p>	7.5%

	<i>minimum, application in statistic</i>	<p>konsep Maximum – Minimum fungsi beberapa variabel dengan pengganda lagrange</p> <p>a. <i>Can explain the concept of maximum, minimum function of several variables.</i></p> <p>b. <i>Can explain the concept of Maximum – Minimum function of multiple variables with lagrange multiplier</i></p>	<i>the classroom</i>	<p>TM: 2x2x50"</p> <p>LT: 2x2x60"</p> <p>BM: 2x2x60"</p>		<i>minimum, application in statistics</i>	
7	<p>Mampu menentukan titik maksimum, minimum, aplikasi dalam statistika</p> <p><i>Able to determine the point of maksimum, minimum, application in statistic</i></p>	<p>a. Dapat menjelaskan aplikasi dalam statistika misal penaksiran parameter pada model regresi linier berganda.</p> <p>b. Dapat menjelaskan aplikasi dalam statistika misal penaksiran dua parameter atau lebih</p> <p>a. <i>Can describe applications in statistics such as parameter estimation in multiple linear regression models.</i></p> <p>b. <i>Can describe the application in statistics such as estimating two or more parameters</i></p>	<p>Tugas 4, tes tulis, observasi di kelas</p> <p><i>Task 4, written test, obreservation in the classroom</i></p>	<p>Ceramah, diskusi dan latihan soal</p> <p><i>Lectures, Discusstion, Exercise</i></p> <p>TM: 2x2x50"</p> <p>LT: 2x2x60"</p> <p>BM: 2x2x60"</p>		<p>Fungsi beberapa variabel : maximum, minimum, aplikasi dalam statistika</p> <p><i>Functions of several variables : maximum, minimum, application in statistics</i></p>	7.5%
8	ETS/Midterm						
9	<p>Dapat menentukan integral lipat dalam sistem koordinat cartesius dan aplikasi dalam statistika</p> <p><i>Can determine the folding integral in</i></p>	<p>a. Dapat menerangkan konsep Integral lipat dalam sistem koordinat cartesius</p> <p>b. Dapat menentukan volume benda</p> <p>a. <i>Can explain the concept</i></p>	<p>Tugas 5, tes tulis, observasi di kelas</p> <p><i>Task 5, written test, obreservation in the classroom</i></p>	<p>Ceramah, diskusi dan latihan soal</p> <p><i>Lectures, Discusstion, Exercise</i></p> <p>TM: 2x2x50"</p>		<p>Integral lipat dalam sistem koordinat cartesius dan aplikasi dalam statistika</p> <p><i>Folding integrals in cartesius coordinate systems and applications in statistics</i></p>	7.5%

	<i>cartesius coordinate systems and applications in statistics</i>	<i>of folding Integrals in cartesius coordinate systems</i> b. <i>Can determine the volume of object</i>		LT: 2x2x60" BM: 2x2x60"			
10	Dapat menentukan integral lipat dalam sistem koordinat cartesius dan aplikasi dalam statistika <i>Can determine the folding integral in cartesius coordinate systems and applications in statistics</i>	a. Dapat menggambar grafik fungsi distribusi Bivariat Normal dan sifat-sifatnya b. Dapat menentukan fungsi pembangkit moment dari distribusi Bivariat Normal a. <i>Can draw graphs of Normal Bivariate distribution functions and their properties</i> b. <i>Can determine the function of the moment generator of the Normal Bivariate distribution</i>	Tugas 5, tes tulis, observasi di kelas <i>Task 5, written test, obreservation in the classroom</i>	Ceramah, diskusi dan latihan soal <i>Lectures, Discusssion, Exercise</i> TM: 2x2x50" LT: 2x2x60" BM: 2x2x60"		Integral lipat dalam sistem koordinat cartesius dan aplikasi dalam statistika <i>Folding integrals in cartesius coordinate systems and applications in statistics</i>	7.5%
11	Dapat menerapkan integral lipat dengan menggunakan perubahan variabel dan aplikasi dalam statistika <i>Can apply folding integrals by using variable and application changes in statistics</i>	Dapat menerangkan konsep Integral lipat dengan menggunakan perubahan variabel <i>Can explain the concept of folding Integrals by using variable changes</i>	Tugas 6, tes tulis, observasi di kelas <i>Task 6, written test, obreservation in the classroom</i>	Ceramah, diskusi dan latihan soal <i>Lectures, Discusssion, Exercise</i> TM: 2x2x50" LT: 2x2x60" BM: 2x2x60"		Integral lipat dalam sistem koordinat cartesius dan aplikasi dalam statistika <i>Folding integrals in cartesius coordinate systems and applications in statistics</i>	7%
12	Dapat menerapkan integral lipat dengan menggunakan perubahan variabel dan aplikasi dalam statistika <i>Can apply folding integrals by using variable and application changes in statistics</i>	Dapat menentukan volume benda dengan menggunakan perubahan variabel <i>Can determine the volume of objects by using variable changes</i>	Tugas 6, tes tulis, observasi di kelas <i>Task 6, written test, obreservation in the classroom</i>	Ceramah, diskusi dan latihan soal <i>Lectures, Discusssion, Exercise</i> TM: 2x2x50" LT: 2x2x60" BM: 2x2x60"		Integral lipat dalam sistem koordinat cartesius dan aplikasi dalam statistika <i>Folding integrals in cartesius coordinate systems and applications in statistics</i>	7%

13	Dapat menerapkan integral lipat dengan menggunakan perubahan variabel dan aplikasi dalam statistika <i>Can apply folding integrals by using variable and application changes in statistics</i>	Dapat menentukan fungsi distribusi dari Fungsi variabel random. <i>Can define a distribution function from a Random variable function</i>	Tugas 6, tes tulis, observasi di kelas <i>Task 6, written test, obreservation in the classroom</i>	Ceramah, diskusi dan latihan soal <i>Lectures, Discusstion, Exercise</i> TM: 2x2x50" LT: 2x2x60" BM: 2x2x60"		Integral lipat dalam sistem koordinat cartesius dan aplikasi dalam statistika <i>Folding integrals in cartesius coordinate systems and applications in statistics</i>	6%
14	Mampu mengaplikasikan integral lipat dalam koordinat kutub dan aplikasi dalam statistika <i>Able to apply folding integrals in polar coordinates and applications in statistic</i>	Dapat menerangkan konsep Integral lipat dalam koordinat kutub <i>Can explain the concept of folding Integral in polar coordinates</i>	Tugas 7, tes tulis, observasi di kelas <i>Task 7, written test, obreservation in the classroom</i>	Ceramah, diskusi dan latihan soal <i>Lectures, Discusstion, Exercise</i> TM: 2x2x50" LT: 2x2x60" BM: 2x2x60"		Integral lipat dalam koordinat kutub dan aplikasi dalam statistika <i>Folding integrals in polar coordinate systems and applications in statistics</i>	7.5%
15	Mampu mengaplikasikan integral lipat dalam koordinat kutub dan aplikasi dalam statistika <i>Able to apply folding integrals in polar coordinates and applications in statistic</i>	Dapat menentukan volume benda dengan integral lipat dalam koordinat kutub. <i>Can determine the volume of a body with a folding integral in polar coordinates</i>	Tugas 7, tes tulis, observasi di kelas <i>Task 7, written test, obreservation in the classroom</i>	Ceramah, diskusi dan latihan soal <i>Lectures, Discusstion, Exercise</i> TM: 2x2x50" LT: 2x2x60" BM: 2x2x60"		Integral lipat dalam koordinat kutub dan aplikasi dalam statistika <i>Folding integrals in polar coordinate systems and applications in statistics</i>	7.5%
16	Evaluasi Akhir Semester / Ujian Akhir Semester/Final Exam						

