

UNIVERSIDAD DE LOS ANDES - FACULTAD DE CIENCIAS - DEPARTAMENTO DE MATEMATICAS
 SYLLABUS DEL CURSO CALCULO EN VARIABLE COMPLEJA, MATE2211, 200620

TEXTO GUÍA: BROWN J.W., CHURCHILL R.V., *Complex Variables and Applications*, 7th Ed., McGraw Hill, 2004

Profesor: José Ricardo ARTEAG Hora de Atención: Lunes 15:00 - 16:00

ar: H-407

Sem	Fecha	No.	Lecturas	TEMAS	T	P	PROBLEMAS	Capitulo	%
1	Lu. 7 Ago	--		Día Festivo					
	Ma. 8 Ago	1	1,2,3,4	Sums, products. Basic algebraic properties. Moduli.			p4:2,10;p7:1b,8;p11:3,5	1	
	Ju. 10 Ago	2	5,6,7	Complex conjugates. Exponential form. Products and Quotients.			p13:2,7,14,16;p21:4,5,10		
	Vi. 11 Ago	3	8,9,10	Roots of Complex numbers. Regions in the complex plane.			p28:3,6,7;p31:1,4,5		
Lu. 14 Ago	4	11	Functions of a complex variable.			p35:1,2,3,4,5			
2	Ma. 15 Ago	5	12,13	Mappings. Mappings by exponential function.			p42:1,2,3,4,7,8	2	
	Ju. 17 Ago	6	14,15,16,17	Limits. Theorems on limits. Limits involving point at infinity. Continuity.			p53:3,5,11,13		
	Vi. 18 Ago	7	18,19	Derivatives. Differentiation formulas.			p59:2,3,7,8,9		
	Lu. 21 Ago	--		Día Festivo					
3	Ma. 22 Ago	8	20,21,22	Cauchy Riemann equations. Sufficient conditions for diff. Polar coord.	T1		p68:2,5,7,8,10		
	Ju. 24 Ago	9							
	Vi. 25 Ago	10		Repaso					
	Lu. 28 Ago	10		Primer Examen Parcial (20%)		P1			
4	Ma. 29 Ago	11	23,24	Analytic functions.			p73:1,2,6,7	3	
	Ju. 31 Ago	12	25	Harmonic functions.			p78:1,5,6,7		
	Vi. 1 Sep	13	26,27,28	Uniquely determined analytic func. Reflection principle. Exponential			p84:2,3;p89:7,8,12		
	Lu. 4 Sep	14	29,30	Logarithm func. Branches and derivatives of logarithms.			p94:3,4,9,10,11		
5	Ma. 5 Sep	15	31,32	Identities involving logarithms. Complex exponents.			p96:1,2,6;p99:3,4,7		
	Ju. 7 Sep	--		Día del estudiante					
	Vi. 8 Sep	16	33,34	Trigonometric functions. Hiperbolic functions.			p103:2,9,10,11,18		
	Lu. 11 Sep	17	35	Inverse trigonometric and hiperbolic functions.			p110:1,2,3,4,5,6		
6	Ma. 12 Sep	18	36,37	Derivatives of functions $w(t)$. Definite integrals of functions $w(t)$.			p115:2,3,4,7	4	
	Ju. 14 Sep	19	38	Contours.			p120:2,3,5,6		
	Vi. 15 Sep	20	39,40	Contour integrals.			p128:1,2,3,4,5,10,11		
	Lu. 18 Sep	21	41	Upper bounds for moduli of contour integrals.			p133:1,2,3,4,5,7		
7	Ma. 19 Sep	22	42,43	Antiderivatives.			p141:2,3,4,5		
	Ju. 21 Sep	23	44,45,46	Cauchy-Goursat theorem. Simply and Multiple connected domains.	T2		p153:1,2,3,4,5		
	Vi. 22 Sep	24	47,48	Cauchy integral formula. Derivatives of analytic functions.			p162:2,4,5,6,8		
	Lu. 25 Sep	25		Segundo Examen Parcial (15%)		P2			
8	Ma. 26 Sep	26	49,50	Liouville's theo. and fund. theo. of algebra. Maximum modulus principle.			p171:1,2,3,5,6,8	5	
	Ju. 28 Sep	27	51,52	Convergence of sequences and series.			p181:1,2,4,9		
	Vi. 29 Sep	28	53,54	Taylor series.			p188:2,3,4,7,9,13		
	Del 2 al 6 de Octubre Semana de receso (Trabajo individual)								
9	Lu. 9 Oct	29	55,56	Laurent series.			p198:2,3,4,5,6,8		
	Ma. 10 Oct	30	57,58,59,60	Abs. & unif. converg. of p.s. Continuity. Integ. and diff. Uniqueness.			p212:2,3,4,9,10,11		
	Ju. 12 Oct	31	61	Multiplication and division of power series.			p218:1,2,3,4,7		
	Vi. 13 Oct	32	62,63,64	Residues. Cauchy residue theorem. Using a single residue.			p230:1,2,3,4		
10	Lu. 16 Oct	--		Día Festivo					
	Ma. 17 Oct	33	65	The three types of isolated singular points.			p233:1,2,4		
	Ju. 19 Oct	34	66,67	Residues at poles.			p238:3,4,5,6		
	Vi. 20 Oct	35	68,69	Zeros of analytic functions. Zeros and poles.			p245:4,5,6,7,8		
11	Lu. 23 Oct	36	70,71,72	Behavior of f near isolated singular points. Evaluation of improper int.			p257:1,2,3,4,5,6,8,9	7	
	Ma. 24 Oct	37	73,74	Improper int. from Fourier analysis. Jordan's lemma.			p265:2,5,6,8,9,12		
	Ju. 26 Oct	38	75,76,77	Indented paths. Indentation around branch point. Int. along branch cut.	T3		p276:1,2,3,4,6		
	Vi. 27 Oct	39	78	Definite integrals involving sines and cosines.			p280:1,2,3,4,5,7		
12	Lu. 30 Oct	40		Tercer Examen Parcial (15%)		P3		8	
	Ma. 31 Oct	41	79,80	Argument principle. Rouché's theorem.			p285:1,2,7,8,11		
	Ju. 1 Nov	42	81,82	Inverse Laplace transforms.			p296:2,3,4,7,8,10,11		
	Vi. 2 Nov	43	83	Linear transformations.			p301:1,2,3,4,5,6		
13	Lu. 6 Nov	--		Día Festivo					
	Ma. 7 Nov	44	84,85	The transformation $w=1/z$. Mappings by $1/z$.			p305:2,4,9,11,13		
	Ju. 9 Nov	45	86,87	Linear fractional transformations. An implicit form.			p312:1,6,7,9,11,12		
	Vi. 10 Nov	46	88	Mappings of the upper half plane.			p316:2,3,4,5,7		
14	Lu. 13 Nov	--		Día Festivo					
	Ma. 14 Nov	47	89	The transformation $w=\sin z$			p322:2,3,4,5,8		
	Ju. 16 Nov	48	90	Mappings by z^2 and branches of $z^{1/2}$			p328:1,2,4,5,7		
	Vi. 17 Nov	49	91	Square roots of polynomials.	T4		p334:1,2,4,5,6		
15	Lu. 20 Nov	50	92,93	Riemann surfaces. Surfaces for related functions.			p338:5;p341:1,3,4,5	9	
	Ma. 21 Nov	51	94,95,96	Preservation of angles. Scale factors. Local inverses.			p350:3,4,7,8,10		
	Ju. 23 Nov	52	97,98,99	Harmonic conjugates. Transf. of harmonic func. Transf. of bound. cond			p358:1,3,4,5,6		
	Vi. 24 Nov	53		Cuarto Examen Parcial (15%)		P4			
http://pentagono.uniandes.edu.co/~jarteaga/uri/varcom/index.htm							NTTQ	15	
Exámenes Finales: Nov. 27 a Dic 9							EXAMENES PARCIALES (15% c/u)	75	
NTTQ=Nota Tablero Tareas y Quizzes (15%)							EXAMEN FINAL	25	