

UNIVERSIDAD DE LOS ANDES
PROGRAMA DEL CURSO CÁLCULO EN VARIABLE COMPLEJA - MATE 2211
SEGUNDO SEMESTRE DE 2015

TODAS LAS CLASES DEBEN INICIAR LABORES A LA HORA EN PUNTO Y TERMINAR 10' ANTES DE LA HORA

TEXTO: Gamelin, T. *Complex analysis*. Undergraduate Texts in Mathematics. Springer-Verlag, New York, 2001.

LITERATURA ADICIONAL:

Taylor, J. L. *Complex variables*. Pure and Applied Undergraduate Texts, 16. American Mathematical Society, Providence, RI, 2011.

Brown, J. and Churchill, R. *Complex Variables and Applications*, 9th Edition, McGraw-Hill, 2013.

Semana No.	Mes	Fecha	Teoría (los problemas se asignarán semanalmente)
1	ENERO	23 Lu a 27 Vi	Chapter 1. The Complex Plane and Elementary Functions 1.1 Complex Numbers 1.2 Polar Representation 1.3 Stereographic Projection
2	FEBRERO	31 Lu a 3 Vi - Tarea 1	1.4 The Square and Square Root Functions 1.5 The Exponential Function 1.6 The Logarithmic Function 1.7 Power Functions 1.8 Trigonometric and Hyperbolic Functions
3		6 Lu a 10 Vi	Chapter 2. Analytic Functions 2.1. Review of Basic Analysis 2.2. Analytic Functions 2.3. The Cauchy-Riemann Equations
4		13 Lu a 17 Vi	2.4. Inverse Mapping and the Jacobian 2.5. Harmonic Functions 2.6* <i>Conformal Mappings</i> 2.7* <i>Fractional Linear Transformations</i>
5		20 Lu a 24 Vi - Parcial 1	Chapter 3. Line Integrals and Harmonic Functions 3.1. Line Integrals and Green's Theorem 3.2 Independence of Path
6	MARZO	27 Lu a 3 Vi	3.3. Harmonic Conjugates 3.4. The Mean Value Property 3.5. The Maximum Modulus Principle 3.6* <i>Applications to Fluid Dynamics</i> 3.7* <i>Other Applications to Physics</i>
7		6 Lu a 10 Vi	Chapter 4. Complex Integration and Analyticity 4.1. Complex Line Integrals 4.2. Fundamental Theorem of Calculus for Analytic Functions 4.3 Cauchy's Theorem
8		13 Lu a 17 Vi - Tarea 2 <i>Último día para entregar el 30%</i>	4.4. The Cauchy Integral Formula 4.5. Liouville's Theorem 4.6. Morera's Theorem
9		20 Lu 24 Vi - <i>Último día de retiros</i>	Chapter 5. Power Series 5.1. Infinite Series 5.2. Sequences and Series of Functions 5.3. Power Series 5.4. Power Series Expansion of Analytic Functions
10		27 Lu a 31 Vi	5.5. Power Series expansion at Infinity 5.6. Manipulation of Power Series 5.7. The Zeros of an Analytic Function 5.8* <i>Analytic Continuation</i>
11	ABRIL	3 Lu a 7 Vi - Parcial 2	Chapter 6. Laurent Series and Isolated Singularities 7.1. Laurent Decomposition 7.2. Isolated Singularities of an Analytic Function
12		Lunes 10 a Viernes 14 de Abril	SEMANA DE TRABAJO INDIVIDUAL
13		17 Lu a 21 Vi	6.3. Isolated Singularity at Infinity 6.4. Partial Fractions Decomposition 6.5* <i>Periodic Functions</i> 6.6* <i>Fourier Series</i>
14		24 Lu a 28 Vi - Tarea 3	Chapter 7. The Residue Calculus 7.1. The Residue Theorem 7.2. Integrals Featuring Rational Functions 7.3. Integrals of Trigonometric Functions 7.4. Integrands with Branch Points
15	MAYO	1 Lu a 5 Vi	Chapter 8. The Logarithmic Integral 8.1. The Argument Principle 8.2. Rouché's Theorem 8.6* <i>The Winding Number</i>
16		8 Lu a 12 Vi	Selected Topics from Chapters 9, 10 and 11

Exámenes Finales: Mayo 15 a 30

* Opcional

EVALUACIÓN DEL CURSO

Dos exámenes parciales (20% c/u): 40%

Tres tareas (10% c/u): 30%

Examen final: 30%

PROFESOR: Alexander Cardona

Email: acardona@uniandes.edu.co

HORA DE ATENCIÓN: Miércoles de 2:00 a.m. a 4:00 p.m.

LUGAR: Oficina H-401.

PAGINA WEB: <http://pentagono.uniandes.edu.co/~acardona/CVC-2017-I.html>