FLORIDA ATLANTIC UNIVERSITY

COURSE CHANGE REQUEST
Graduate Programs

Department Mathematical Sciences

College Science

UGPC Approval _____
UFS Approval _____
SCNS Submittal _____
Confirmed _____
Banner Posted _____
Catalog _____

***Current* Course Prefix and Number**	MAA 6406	***Current* Course Title**	Complex Analysis 1

*Syllabus must be attached for **ANY** changes to current course details. See Guidelines. Please consult and list departments that may be affected by the changes; attach documentation.*

Change title to:
Complex Analysis

Change prefix
From: **To:**

Change course number
From: **To:**

Change credits*
From: **To:**

Change grading
From: **To:**

*Review Provost Memorandum

Change description to:

Change prerequisites/minimum grades to:
MAA 5228 with minimum grade C

Change corequisites to:

Change registration controls to:

Please list existing and new pre/corequisites, specify AND or OR and include minimum passing grade.

Effective Date *(TERM & YEAR)*	Spring 2021	**Terminate course** **List final active term**	

Faculty Contact/Email/Phone Tomas Schonbek, schonbek@fau.edu, 561-297-3355

Approved by		***Date***
Department Chair		09/30/2020
College Curriculum Chair	Christopher Beetle 2020.10.21 16:51:54 -04'00'	
College Dean	William David Kalie	10/21/2020
UGPC Chair		
UGC Chair		
Graduate College Dean		
UFS President		
Provost		

Email this form and syllabus to UGPC@fau.edu one week before the UGPC meeting.

Syllabus

1. Course Information

Course Name: Complex Analysis
Course Number: MAA 6406

Number of Credits: 3

2. Course Prerequisites

MAA 5228 with minimum grade C

3. Course Logistics

a. Term - Fall 2020
b. Class location and time: TBA

4. Instructor

Name: Tomas Schonbek, Office SE 282
Phone: (561) 297-3355, fax (561) 297-2436
E-mail: schonbek@fau.edu

5. Course Description

The complex plane and its geometry, stereographic projection and linear fractional transformations, analytic and harmonic functions, contour integration, Cauchy's theorem and the calculus of residues, and special functions and conformal mapping.

6. Course Objectives

Students will be exposed to one of the most important and traditional areas of mathematics. Upon successful completion of the course students will be able to:

- Have a deeper understanding of complex numbers.
- Understand the difference between real and complex differentiation.
- Understand the concept of “holomorphic function”, know the basic properties of these functions..
- Be familiar with the complex exponential and the complex logarithm, as well as many other holomorphic functions.
- Understand the concepts of isolated singularities, essential ones and poles. Be able to evaluate integrals using residues.
- Know the basics of conformal mappings.

- Have seen some applications of complex analysis to other parts of mathematics, such as number theory.

7. Course Evaluation Method

This is a graduate course taught to a mature and motivated audience. Grading will depend on frequently assigned homework (60%) and a cumulative final exam (40%).

. Course Grading Scale

Cumulative Performance	Grade
90%–100%	A
88%–89%	A-
85%–87%	B+
80%–84%	B
78%–79%	B-
75%–77%	C+
70%–74%	C
65%–69%	C-
60%–64%	D
0%–59%	F

8. Policy on Makeup Tests, Late work, and Incompletes

Make-up exams will be given only under exceptional circumstance, and written, verifiable excuses must be provided in advance of the scheduled exams. No late work will be accepted. Grades of Incomplete (”I”) are reserved for students who are passing a course but have not completed all the required work because of exceptional circumstances. A grade of ”I” will only be given under certain conditions and in accordance with the academic policies and regulations put forward in FAU’s University Catalog. The student must show exceptional circumstances why requirements cannot be met. A request for an incomplete grade has to be made in writing with supporting documentation, where appropriate.

9. Classroom Etiquette Policy

University policy on the use of electronic devices states: ”In order to enhance and maintain a productive atmosphere for education, personal communication devices, such as cellular telephones and pagers, are to be disabled in class sessions.”

10. Disability Policy Statement

In compliance with the Americans with Disabilities Act (ADA), students who require reasonable accommodations due to a disability to properly execute coursework must register with Student Accessibility Service (SAS) —in Boca Raton, SU 133 (561-297-3880); in Davie, LA 203 (954-236-1222); or in Jupiter, SR 110 (561-799-8585)–and follow all SAS procedures.

11. Honor Code Policy Statement

Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty, including cheating and plagiarism, is considered a serious breach of these ethical standards, because it interferes with the University mission to provide a high quality education in which no student enjoys an unfair advantage over any other. Academic dishonesty is also destructive of the University community, which is grounded in a system of mutual trust and places high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. For more information, see University Regulation 4.001 at http://www.fau.edu/ctl/4.001 _Code of _Academic Integrity.pdf

12. Counseling and Psychological Services (CAPS) Center

Life as a university student can be challenging physically, mentally and emotionally. Students who find stress negatively affecting their ability to achieve academic or personal goals may wish to consider utilizing FAU's Counseling and Psychological Services (CAPS) Center. CAPS provides FAU students a range of services-individual counseling, support meetings, and psychiatric services, to name a few – offered to help improve and maintain emotional well-being. For more information, go to http://www.fau.edu/counseling/

13. Required Texts/Readings

Complex Analysis, by E.M. Stein and R. Shakarchi, Princeton Lectures in Analysis, II, Princeton University Press, 2003.

14. Exams and Assignments

There will be one comprehensive final exam on the scheduled date. Homework will be assigned frequently and should be handed in on the due dates. Late assignments will not be accepted.

15. Tentative Weekly Schedule

Week	Topics
1	Complex Numbers and the Complex Plane
2	Holomorphic Functions, Power Series, Integration along Curves
3	Goursat's Proof of Cauchy's Theorem for a Triangle; Primitives.
4	Cauchy's Integral Theorem, Liouville's Theorem and Consequences.
5	Further Applications; Sequences of holomorphic Functions, Morera's Theorem.
6	Laurent Expansions, Zeros and Poles, Residues.
7	The residue formula, applications.
8	Meromorphic Functions, the Argument Principle and Applications, Rouché's Theorem.
9	Simply Connected Domains, The Complex Logarithm.
10	Conformal Mappings, the Dirichlet Problem in a Disc and a Strip.
11	Montel's Theorem and Proof of the Riemann Mapping Theorem.

12	Entire Functions, Infinite Products.
13	Weierstrass Infinite Products, Hadamard Factorization Theorem.
14	The Zeta Function.
15	Further Properties of the Zeta Function.