

MAA: Mathematics: Analysis Courses

Courses

MAA 4211 Advanced Calculus I
3 sh (may not be repeated for credit)
Prerequisite: MAC 2313 AND MHF 3202

The theory of functions of a real variable. Inequalities, sequences, rigorous discussion of limits, continuity, differentiability and Riemann integrals. Basic concepts of point set topology on the real line. Meets Gordon Rule Theoretical Mathematics Requirement.

MAA 4212 Advanced Topics in Multi-Variable Calculus
3 sh (may not be repeated for credit)
Prerequisite: MAC 2313

Differential and integral calculus of functions of several variables. Basic concepts of point set topology on the plane, partial derivatives, chain rule, multiple integrals and their transformations, infinite series, uniform convergence of sequences and series of functions. Meets Gordon Rule Theoretical Mathematics Requirement.

MAA 4402 Analytic Functions
3 sh (may not be repeated for credit)
Prerequisite: MAC 2313

Parts of the theory of complex variables that are prominent in applications of the subject. Topics covered: the algebra and geometry of complex numbers, Cartesian and polar representation, differentiability of complex functions, analytic functions, the elementary functions, contour integrals and the Cauchy-Goursat theorem, the Cauchy integral formulae, power series expansions, residue theorem. Offered concurrently with MAA 5404; graduate students will be assigned additional work.

MAA 4905 Directed Study
1-12 sh (may be repeated indefinitely for credit)

MAA 5404 Analytic Functions
3 sh (may not be repeated for credit)

Parts of the theory of complex variables that are prominent in applications of the subject. Topics covered: the algebra and geometry of complex numbers, Cartesian and polar representation, differentiability of complex functions, analytic functions, the elementary functions, contour integrals and the Cauchy-Goursat theorem, the Cauchy integral formulae, power series expansions, residue theorem. Senior standing is required. Offered concurrently with MAA 4402; graduate students will be assigned additional work.

MAA 5905 Directed Study
1-12 sh (may be repeated indefinitely for credit)

MAA 6306 Real Analysis
3 sh (may not be repeated for credit)

A classical real analysis course begins with a typological study of the real number line and includes the Holder and Minkowski inequalities, and other classical inequalities; metric spaces, open and closed sets, convergence, Cauchy sequences, completeness, continuity; normed spaces. The course also includes the Lebesgue integral on the real line, convergence results for sequences of functions. Students are expected to have been exposed to rigorous discussions of limits, continuity, differentiability, Riemann integrals, and basic concepts of point set topology on the real line.

MAA 6426 Complex Analysis
3 sh (may not be repeated for credit)

Several advanced topics in the theory of complex variables are covered including analytic functions, harmonic functions, Cauchy's theorem and integral formula, maximum modulus principle, Laurent series, singularities, and the residue theorem. The course objective is to present in a rigorous manner the parts of the theory that are prominent in applications of the subject.

MAA 6905 Directed Study
1-12 sh (may be repeated indefinitely for credit)