Course Outline for Physics 116A

1. Infinite Series, Power Series and Asymptotic Series
2. Complex Numbers and complex functions
3. Special Functions defined by integrals
4. Matrices, Linear Algebra and Vector Spaces
5. Eigenvalue Problems and Matrix Diagonalization
6. Tensor Analysis

Course outline for Physics 116B

1. Fourier Series and Transforms
2. Ordinary Differential Equations
3. Calculus of Variations
4. Functions of a Complex Variable: Theory
5. Functions of a Complex Variable: Applications

Course outline for Physics 116C

1. Series Solutions of Differential Equations
2. Orthogonal Polynomials and Sturm-Liouville Problems
3. Partial Differential Equations
4. Probability Theory
5. Mathematical Statistics