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*Physics 301: Mathematical Physics*

*Course Outline*

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*General Information*

**Lecturer:** Professor Junru Wu  
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**Office Hours** T 10-11, W 1-3 and by appointment

Schedule

Lecture                      TR                      11:30-12:45                      Cook 402

Course Prerequisites

Physics 211, Physics 214

Course Description

Introduction to basic mathematical methods of theoretical physics; vector and matrices spaces, Fourier analysis, Integral transforms, partial differential equations, orthogonal functions, Green's function and complex variables.

Chapters 3, 7, 8, 10, 12, 13, 17, 20, 21, 24.

Course Text

Mathematical Methods for Physics and Engineering, 3rd Edition, K.F. Riley, M.P. Hobson, and S.J. Bence (Cambridge University Press)

This text is available at the [UVM Bookstore](#) and [online](#).

References

**Mathematical Methods for Physics, H.W. Wyld**  
**Mathematical Methods for Physicists, G. Arfken**  
**Advanced Mathematical Methods for Scientists and Engineers, C.M. Bender and S.A. Orszag**  
(These are available on reserve in the [Cook Science Library](#).)

### Homework

There will be approximately a problem set each week.

### Exams

There will be three exams. The final grade of the course will be based on the homework (40%), the three exams (20% each).