

PHYS S0152 Mathematical Physics II, Spring 2006

- **Course Description:**

This course introduces some of the mathematical techniques that are frequently used in the analysis of a wide variety of physical problems.

- **Credits**

Three (3) credit hours

- **Prerequisites**

General Physics (S0290), Calculus (S0325)

- **Lectures**

Monday 10:10–11:00, 11:10–12:00 in L306; Thursday 10:10–11:00 in C004; lectured in English

- **Office Hours**

Monday 14:10–15:00; Thursday 14:10–15:00; and by appointment.

- **Lecturer**

Shang-Yung Wang (Office: Sa123; Ext: 3160; Email: sywang@mail.phys.tku.edu.tw)

- **Course Web Page**

<http://dctsp.ec.tku.edu.tw/125982qp>

- **Textbook and References**

1. *Mathematical Methods for Physicists*, G.B. Arfken and H.J. Weber, 5th ed. (textbook)
2. *Mathematical Methods of Physics*, J. Mathews and R.L. Walker, 2nd ed. (reference)
3. *Mathematical Physics*, E. Butkov (reference)
4. *MathWorld – A Wolfram Web Resource*, E.W. Weisstein (reference, available online at <http://mathworld.wolfram.com>)
5. *Handbook of Mathematical Functions*, M. Abramowitz and I.A. Stegun (reference, available online at <http://www.convertit.com/Go/EducationPlanet/Reference/AMS55.ASP>)

- **Homework**

Homework is a very important part of the course. Homework will be assigned in class every Monday, and is due the following Monday at the start of the class. Late homework will *not* be accepted.

- **Midterm**

Midterm is scheduled on Monday, April 17th, 10:20–11:50.

- **Final Exam**

Final is scheduled on Monday, June 19th, 10:20–11:50.

- **Grading**

Homework (30%), Midterm (30%), Final exam (40%)

- **Plan of Lectures (tentative)**

1. Integral Transforms
2. Sturm-Liouville Theory
3. Special Functions
4. Boundary-Value Problems
5. Calculus of Variations*

*if time permitted