

Faculty of Science Course Syllabus (revised June 2018)**Department of Mathematics and Statistics**

MATH4165/MATH5165/PHYC4160/PHYS5160

*Topics in Mathematical Physics**Fall 2018***Instructor(s):** Roman Smirnov Roman.Smirnov@dal.ca Chase234**Lectures:** MW 10:05-11:25 Chase319**Laboratories:** N/A**Tutorials:** N/A

*Submit course syllabus to your Department office for posting on the Dept website [prior](#) to the start of term
Submit requests for [final exam exemptions](#) (1000, 2000 and 3000 level courses only) to the Dean's office [at least 2 weeks prior to the start of term](#)*

Course Description

Topics discussed include: complex variable theory, Fourier and Laplace transform techniques, special functions, partial differential equations.

Course Prerequisites

MATH 3120.03 or MATH 3260.03 or permission of instructor.

Course Objectives/Learning Outcomes

To learn mathematical technics (complex variables, special functions, integral transformations) that can be used in solving linear partial differential equations that arise in physics and other sciences.

Course Materials

Recommended textbook: "Mathematical Methods for Physics and Engineering" by K. F. Riley, M. P. Hobson and S. J. Bence, 3rd Edition, Cambridge University Press. Three copies of the textbook along with three student solutions manuals have been put on reserves at the Killam Library.

Course Assessment

*Include **dates and times** for all tests, quizzes and exams, including lab exams. If known, include due dates for assignments. Note any [scheduled](#) elements held outside of class time (e.g., mid-terms, field trips).*

NOTES: (1) An exemption is required for 1000 to 3000 level courses if you are [not](#) planning to hold a final exam scheduled by the Registrar's Office. Submit your syllabus along with your request (**and reason for the request**) to the Assistant Dean (scieasst@dal.ca) [at least 2 weeks](#) prior to the start of classes.

Component	Weight (% of final grade)	Date
<i>Tests/quizzes</i> Midterm	20%	November 21 (in class)
<i>Final exam</i>	50%	(Scheduled by Registrar)

Assignments (*list*) 5 bi-weekly assignments 30%

Other course requirements

Attendances of lectures

Conversion of numerical grades to Final Letter Grades follows the Dalhousie Common Grade Scale

A+ (90-100)	B+ (77-79)	C+ (65-69)	D	(50-54)
A (85-89)	B (73-76)	C (60-64)	F	(<50)
A- (80-84)	B- (70-72)	C- (55-59)		

Course Policies

Late homework will not be accepted except with the instructor's prior permission.

A missed midterm cannot be written at another time. If you miss the midterm without prior permission, then it will count as a 0. Exceptions are made in two cases: (1) if you obtain the instructor's prior permission to miss a midterm, or (2) if you have an officially valid excuse such as a medical doctor's note. In these cases, the weight of the missed midterm will be shifted to the final exam (e.g., the final exam will then count 70% instead of 50%). There is no make-up option for the final exam except in cases of an officially valid excuse such as a medical doctor's note.

The students are expected to work on the assignments individually.

Course Content (tentative)

Complex variables (September 8- October 3)

Chapters 3, 24

Integral transforms (October 8 – October 17)

Chapter 13

Special Functions (October 22 – November 7)

Chapter 18

Partial differential equations (November 19 – December 5)

Chapter 20, 21