Academic Calendar

physics 2400, Spring semester 2016

Last modified: February 25, 2016

TUESDAY	THURSDAY
Jan 19th **Lecture 1** Course logistics; Video: R. Feynman, The relation of Mathematics and Physics; computer algebra systems; very short introduction to Mathematica; Homework 1 assigned.	Jan 21st **Lecture 2** Textbook Ch. 6 *Evaluation of integrals*: Gaussian integrals (pp. 125-6); Gamma function, $\Gamma(x)$ (pp. 126); recurrence relation for $\Gamma(x)$; Gamma function and factorial; Euler's formula; adding convergence factors in integrals; (handout).
Jan 26th **Lecture 3** Beta function, $B(x, y)$ (pp. 239-40); (handout); Homework 2 assigned.	Jan 28th **Lecture 4** Differentiation with respect to a parameter (pp. 127-9); Euler summation; example – binding energy of a 1d ionic solid; (handout); Frullani's integral (handout);
Feb 2nd **Lecture 5** Differentiation with respect to a parameter: Leibniz's formula. Complex numbers; Euler's formula (handout); coordinate and polar form; complex powers of complex numbers; logarithms of complex numbers. Complex functions, $f(z)$. Real and imaginary parts of complex functions. Derivative of a complex function. Analytic functions. Homework 3 assigned.	Feb 4th **Classes cancelled due to power outage**
Feb 9th **Lecture 6** Complex functions. Real and imaginary parts of complex functions, $f(z) = u(x, y) + iv(x, y)$. Derivative of a complex function. Cauchy-Riemann conditions. (Ch. 7.2)	Feb 11th **Lecture 7** Analytic functions. Liouville theorem. Integral of a complex function. Cauchy's integral theorem. (handout). Deformation of integration contours. Homework 4 assigned.
Feb 16th **Lecture 8** Use of Cauchy's integral theorem, II. Orthogonality contour lines of $u(x, y) = const$ and $v(x, y) = const$.	Feb 18th **Lecture 9** Use of Cauchy's integral theorem. Cauchy's integral formula. The integral that stumped Feynman.
Feb 23rd **Class cancelled**	Feb 25th **Lecture 10** Taylor and Laurent series. Poles. Method of residues. Handout, Ch. 8.1. Homework 5 assigned.
Mar 1st **Lecture 11**	Mar 3rd **Midterm I**
Mar 8th **Lecture 12**	Mar 10th **Lecture 13**

TUESDAY	THURSDAY
Mar 15th **No classes – Spring Break**	Mar 17th **No classes – Spring Break**
Mar 22nd **Lecture 14**	Mar 24th **Lecture 15**
Mar 29th **Lecture 16**	Mar 31st **Lecture 17**
Apr 5th **Lecture 18**	Apr 7th **Lecture 19**
Apr 12th **Lecture 20**	Apr 14th **Lecture 21**
Apr 19th **Lecture 22**	Apr 21st **Lecture 23**
Apr 26th **Lecture 24**	Apr 28th **Lecture 25**
May 3rd **Week of Finals**	May 5th **Week of Finals**