Academic Calendar: PHYS2400, Spring 2015

TUESDAY	THURSDAY
Jan 20th **Lecture 1** Video: R. Feynman, The relation of Mathematics and Physics. Textbook Ch. 6 *Evaluation of integrals*: Gaussian integrals (pp. 125-6); Gamma function, $\Gamma(x)$ (pp. 126, 239).	Jan 22nd **Lecture 2** Beta function, $B(x, y)$ (pp. 239-40); Differentiation with respect to a parameter (pp. 127-9); Frullani's integral (handout).
Jan 27th **All classes cancelled – Winter storm**	Jan 29th **Lecture 3** Differentiation with respect to a parameter, II; Euler's formula; Leibniz's formula. Homework 2 assigned.
Feb 3rd **Lecture 4** Integrals over solid angle; use of symmetry arguments (Textbook Ch. 6, pp 130-2).	Feb 5th **Lecture 5** Adding convergence factors in integrals. Introduction to Mathematica.
Feb 10th **Lecture 6** Complex numbers; coordinate and polar form; complex powers of complex numbers; logarithms of complex numbers. Complex functions, $f(z)$. Real and imaginary parts of complex functions, $u(x, y)$ and $v(x, y)$. Derivative of a complex function. Analytic functions.	Feb 12th **Lecture 7** Cauchy-Riemann conditions. Liouville theorem. Homework 3 assigned.
Feb 17th **Lecture 8** Orthogonality of contour lines of constant $u(x, y)$ and $v(x, y)$. Integral of a complex function. Cauchy's integral theorem. (handout). Deformation of integration contours. Cauchy's integral formula.	Feb 19th **Lecture 9** Use of Cauchy's integral theorem. Cauchy's integral formula. *The integral that stumped Feynman.*
Feb 24th **Lecture 10** Taylor and Laurent series. Poles. Method of residues. Jordan's lemma. Homework 4 assigned.	Feb 26th **Lecture 11**
Mar 3rd **Lecture 12**	Mar 5th **Lecture 13**
Mar 10th **Lecture 14**	Mar 12th **Lecture 15**
Mar 17th **No classes – Spring Break**	Mar 19th **No classes – Spring Break**
Mar 24th **Lecture 16**	Mar 26th **Lecture 17**
Mar 31st **Lecture 18**	Apr 2nd **Lecture 19**
Apr 7th **Lecture 20**	Apr 9th **Lecture 21**

TUESDAY	THURSDAY
Apr 14th **Lecture 22**	Apr 16th **Lecture 23**
Apr 21st **Lecture 24**	Apr 23rd **Lecture 25**
Apr 28th **Lecture 26**	Apr 30th **Lecture 27**
May 5th **Week of Finals**	May 7th **Week of Finals**