# Erin M. Kiley: Courses Taken

Worcester Polytechnic Institute

◇ **Logic in Computer Science**, Autumn 2013.
Instructor: Daniel Dougherty.
Text: Nipkow and Klein, *Concrete Semantics*.
Topics: Model theory, proof theory, and decidability for propositional and first-order classical logics, as well as various non-classical logics that provide useful tools for computer science (such as temporal and intuitionistic logics). The course stresses the application of logic to various areas of computer science such as computability, theorem proving, programming languages, specification, and verification.

◇ **Fundamentals of RF and Microwave Engineering**, Autumn 2013.
Instructor: Reinhold Ludwig.
Text: Ludwig, Bogdanov, *RF Circuit Design: Theory and Practice*.
Topics: Radio frequency (RF) and microwave (MW) propagation modes, transmission line aspects, Smith Chart, scattering parameter analysis, microwave filters, matching networks, power flow relations, unilateral and bilateral amplifier designs, stability analysis, oscillators circuits, mixers and microwave antennas for wireless communication systems.

◇ **Convex Analysis and Optimization**, Spring 2013.
Instructor: Bogdan Vernescu.
Text: Ekeland and Temam, *Convex Analysis and Variational Problems*.
Topics: Minimization theory for quadratic and convex functionals on convex sets and cones, the Legendre-Fenchel duality, variational inequalities and complementarity systems. Optimal stopping time problems in deterministic control, value functions and Hamilton-Jacobi inequalities and linear and quadratic programming, duality and Kuhn-Tucker multipliers.

◇ **Finite Element Methods**, Spring 2013.
Instructor: John Sullivan.
Topics: Matrix structural analysis variation form of differential equations, Ritz and weighted residual approximations, and development of the discretized domain solution. One- and two-dimensional equilibrium problem. Elasticity and heat flow.

◇ **Applied Linear Algebra**, Autumn 2012.
Instructor: Homer Walker.
Topics: Norms and inner products (norms, equivalence of norms, limits and convergence of sequences, inner products, orthogonality, orthonormal bases, orthogonalization); orthogonal complements, orthogonal projections, and the representation theorem; linear transformations on inner-product spaces (adjoint transformations, matrix transpose and Hermitian transpose, linear equations revisited, linear functionals and dual spaces); symmetric and positive-definite transformations (symmetric transformations, symmetric and Hermitian matrices, linear equations revisited, orthonormality of eigenvectors, spectral theorem, positive and positive-definite transformations and matrices, quadratic forms); Unitary transformations, orthogonal and unitary matrices; Jordan, Schur and singular value decompositions; matrix functions, exponentials and systems of differential equations.

◇ **Complex Analysis**, Spring 2012.
Instructor: Mayer Humi.
Text: Marsden and Hoffman, *Basic Complex Analysis*.
Topics: Complex numbers, complex differentiation, the Cauchy-Riemann equations, analytic functions, Cauchy's theorem, complex integration, the Cauchy integral formula, Liouville's theorem, the Gauss mean value theorem, the maximum modulus theorem, Rouche's theorem, the Poisson integral formula, Taylor-Laurent expansions, singularity theory, conformal mapping with applications, analytic continuation, Schwarz's reflection principle and elliptic functions.

◇ **Hilbert Spaces and Applications to Partial Differential Equations**, Spring 2012.
Instructor: Umberto Mosco.
Texts: Gould, *Variational Methods for Eigenvalue Problems*, Taylor, *Measure Theory and Integration*.
Topics: Spectral theory for linear operators in $n$-dimensional and infinite dimensional Hilbert spaces, spectral theory for symmetric compact operators, linear and bilinear forms, Riesz and Lax-Milgram theorems, weak derivatives, Sobolev spaces $H^1$, $H^2$, Rellich compactness theorem, weak and classical solutions for Dirichlet and Neumann problems in one variable and in $\mathbb{R}^n$, Dirichlet variational principle, eigenvalues and eigenvectors.

◇ **Advanced Electromagnetic Theory**, Spring 2012.
Instructor: L. Ramdas Ram-Mohan.
Text: Jackson, *Classical Electrodynamics*.
Topics: Classical electrodynamics including boundary value problems using Green's functions. Maxwell's equations, electromagnetic properties of matter, wave propagation and radiation theory.

◇ **Analysis of Deterministic Signals and Systems**, Autumn 2011.
Instructor: David Holl.
Text: Chen, *Linear System Theory and Design*.
Topics: Fourier transforms, Laplace transforms, Z transforms and their interrelationship. State space modeling of continuous-time and discrete-time systems. Canonical forms, solution of state equations, controllability, observability and stability of linear systems. Pole placement via state feedback, observer design, Lyapunov stability analysis.

◇ **Mathematical Modeling**, Autumn 2011.
Instructor: Burt Tilley.
Text: Lin and Segel, *Mathematics Applied to Deterministic Problems in the Mathematical Sciences*, Gelfand and Fomin, *Calculus of Variations*, Hildebrand, *Methods of Applied Mathematics*.
Topics: model building using dimensional analysis, perturbation theory and variational principles. Models from natural and social sciences: planetary orbits, spring-mass systems, fluid flow, isomers in organic chemistry, biological competition, biochemical kinetics and physiological flow. Computer simulation of these models.

◇ **Applied Numerical Methods in Engineering**, Autumn 2011.
Instructor: John Sullivan.
Topics: Methods for solving linear and nonlinear equations, interpolation strategies, evaluating integrals, and solving ordinary and partial differential equations. Finite difference methods, systematic generation of numerical methods for elliptic, parabolic, and hyperbolic problems, and the analysis of their stability, accuracy, and convergence properties.

◇ **Algorithms: Design and Analysis**, Spring 2011.
Instructor: Stanley Selkow.
Text: Cormen, Leiserson, Rivest, Stein, *Introduction to Algorithms*.
Topics: Design, analysis, proofs of correctness of algorithms. Asymptotic worst case and average case, amortized analysis, development of probability models, techniques for proving lower bounds on complexity.

◇ **Numerical Differential Equations**, Spring 2011.
Instructor: Marcus Sarkis.
Text: Quarteroni, *Numerical Models for Differential Problems*.
Topics: Initial value problems, including Euler's method, Runge-Kutta methods, multi-step methods, implicit methods and predictor-corrector methods; the solution of two-point boundary value problems by shooting methods and by the discretization of the original problem to form systems of nonlinear equations; numerical stability; existence and uniqueness of solutions; and an introduction to the solution of partial differential equations by finite differences. Finite element, boundary element methods, Galerkin methods, collocation, variational methods.

◇ **Foundations of Computer Science**, Autumn 2010.
Instructor: Daniel Dougherty.
Text: Hopcroft, *Introduction to Automata Theory, Languages, and Computation*, Kozen, *Automata and Computability*.
Topics: Finite automata and regular languages, pushdown automata and context-free languages, Turing machines and decidability, computational complexity.

◇ **Discrete Mathematics**, Spring 2010.
Instructor: William Martin.
Text: van Lint and Wilson, *A Course in Combinatorics*.
Topics: Sets, relations, posets, enumeration, graphs, digraphs, monoids, groups, discrete probability theory and propositional calculus.

◇ **Probability and Mathematical Statistics**, Autumn 2010.
Instructor: Balgobin Nandram.
Text: Casella and Berger, *Statistical Inference*.
Topics: Axiomatic foundations, the calculus of probability, conditional probability and independence, Bayes' Theorem, random variables, discrete and continuous distributions, joint, marginal and conditional distributions, covariance and correlation, expectation, generating functions, exponential families, transformations of random variables, types of convergence, laws of large numbers the Central Limit Theorem, Taylor series expansion, the delta method.

◇ **Numerical Linear Algebra**, Spring 2010.
Instructor: Marcus Sarkis.
Text: Golub and van Loan, *Matrix Computations*.
Topics: Vector and matrix algebra, vector and matrix norms, the singular value decomposition, the LU and QR decompositions, Householder transformations and Givens rotations, and iterative methods for solving linear systems including Jacobi, Gauss-Seidel, SOR and conjugate gradient methods; and eigenvalue problems. Least squares and optimization, special linear systems, (symmetric, positive definite, banded and sparse systems); preconditioning; the Cholesky decomposition; sparse tableau and other least-square methods; or algorithms for parallel architectures.

◇ **Partial Differential Equations**, Spring 2010.
Instructor: Konstantin Lurie.
Text: Guenther and Lee, *Partial Differential Equations of Mathematical Physics and Integral Equations*.
Topics: Classical linear elliptic, parabolic and hyperbolic equations and systems, characteristics, fundamental/Green's solutions, potential theory, the Fredholm alternative, maximum principles, Cauchy problems, Dirichlet/Neumann/Robin problems, weak solutions and variational methods, viscosity solutions, nonlinear equations and systems, wave propagation, free and moving boundary problems, homogenization.

◇ **Lebesgue Measure and Integration**, Autumn 2009.
Instructor: Darko Volkov.
Text: Andrew Browder, *Mathematical Analysis*.
Topics: Open, closed and compact sets; liminf and limsup; continuity and uniform convergence. Lebesgue measure in $\mathbb{R}^n$ including the Cantor set, the concept of a sigma-algebra, the construction of a nonmeasurable set, measurable functions, semicontinuity, Egorov's and Lusin's theorems, and convergence in measure. Lebesgue integration, integral convergence theorems (monotone and dominated), Chebyshev's inequality and Tonelli's and Fubini's theorems. $L^p$ spaces are introduced with emphasis on $L^2$ as a Hilbert space.

◇ **Numerical Methods**, Autumn 2009.
Instructor: Mayer Humi.
Text: Kendall Atkinson, *An Introduction to Numerical Analysis*.
Topics: Numerical methods for systems of linear and nonlinear equations, interpolation and approximation, differentiation and integration, and differential equations. Basic direct and iterative methods for linear systems; classical rootfinding methods; Newton's method and related methods for non-linear systems; fixed-point iteration; polynomial, piecewise polynomial, and spline interpolation methods: least-squares approximation; orthogonal functions and approximation; basic techniques for numerical differentiation; numerical integration, including adaptive quadrature; and methods for initial-value problems for ordinary differential equations.

◇ **Numerical Methods for Unconstrained Optimization and Nonlinear Equations**, Autumn 2009.
Instructor: Homer Walker.
Text: J.E. Dennis and R.B. Schnabel, *Numerical Methods for Unconstrained Optimization and Nonlinear Equations*.
Topics: Bisection, Newton, secant, and practical hybrid methods; Newton's method in several variables, finite-difference Newton's method; globally convergent modifications of Newton's method, backtracking and trust region methods; quasi-Newton and secant-update methods, the Broyden update, sparsity preserving updates, limited-memory methods, considerations of PDE; fixed-point iteration, path-following, continuation, homotopy methods; Newton-iterative and inexact Newton methods; Krylov subspace and Newton-Krylov methods.

Gene Golub SIAM Summer School

◇ **Identification and Inverse Problems**, Summer 2014.
Instructor: Ester Klann.
Topics: Tomography; regularization methods; generalized Tikhonov regularization; spaces of shapes, shape sensitivity analysis, level sets; simultaneous reconstruction and segmentation from tomography data.

◇ **Material and Topology Optimization**, Summer 2014.
Instructor: Michal Stingl.
Topics: Beam design problem, existence of solutions, convergent approximation scheme, numerical solution; abstract existence and approximation framework, parametric topology and material optimization, abstract theory and application to a class of 2D topology optimization problems; sensitivity analysis, optimality criteria method.

◇ **Mathematical Programming with Complementarity Constraints**, Summer 2014.
Instructor: Roland Herzog.
Topics: Optimality conditions in nonlinear optimization, numerical approaches, the chain problem and associated mathematical programming and complementarity constraints, the obstacle problem, the elastoplastic truss problem.

◇ **Adaptive Finite Elements**, Summer 2014.
Instructor: Winnifried Wollner.
Topics: Model algorithm, residual error estimates (energy norm), convergence and complexity of adaptive finite elements, other error estimators (implicit, recovery, hierarchical estimators), L2 error estimates, errors in quantities of interest, residual and DWR type estimates, extensions to state constraints, control in the coefficients.

CBMS-NSF Summer School

◇ **Fast Direct Solvers for Elliptic PDEs**, Summer 2013.
Instructor: Per-Gunnar Martinsson.
Topics: Structured matrix computations that exploit analytic structure in discretized differential and integral equations; new randomized methods for accelerating certain linear algebraic computations and reducing communication bottlenecks; and the interplay between direct solvers and high-order discretization techniques that allow the solution of PDEs to ten digits of accuracy or more.

IMA Program: Computational Wave Propagation

◇ **Contemporary Asymptotic Methods**, Summer 2010.
Instructors: Robert Burridge and Jianling Qian.
Topics: Asymptotic and semi-classical methods for wave equations in the high-frequency range.

◇ **Numerics for Full Waves**, Summer 2010.
Instructor: Jean-Claude Nédélec.
Topics: Advanced numerical methods for solving full-wave models of wave equations. Includes finite element and integral equation methods.

◇ **Applications in Wave Propagation**, Summer 2010.
Instructors: Bernardo Cockburn, John Schotland, David Dobson, Jeffrey Rauch, Jiangfang Huang, Thomas Hagstrom, Li-Tien Cheng, Shingyu Leung, Peijun Li, Ya Yan Li, Balasubramaniam Shanker, Songming Hou, Yassine Boubendir.
Topics: Industrial and military applications such as nano-optics, radar, seismic imaging, medical imaging, submarine detection, stealth technology, remote sensing, microscopy, nanotechnology.

Jyväskylä Summer School

◇ **Approximation and Numerical Realization of Contact Problems with Friction**, Summer 2007.
Instructor: Jaroslav Haslinger.
Topics: Static contact problems with Tresca model; variational inequality of second kind; primal, mixed, dual variational formulations; numerical solution methods in 2D and 3D; Coulomb law of friction with fixed point approach, Newton method; Nonmonotone frictions (hemivariational inequalities); Contact shape optimization, sensitivity analysis of discretized models.

◇ **Stochastic Local Search Algorithms**, Summer 2007.
Instructor: Pekka Orponen.
Topics: Simulated annealing, genetic algorithms, WalkSAT family of propositional satisfiability solvers. Search spaces and search methods, backtracking, local and heuristic search, families and applications of local search, Markov chain analysis, optimization landscapes and dynamics of search.

◇ **Partial Differential Equations for Options Pricing**, Summer 2007.
Instructor: Yves Achdou.
Topics: Options pricing, Merton and Black-Scholes modeled financial derivatives, stochastic differential equations, partial differential equation methods and numerical solution.

◇ **Introduction to the Optimization of Elliptic Systems**, Summer 2007.
Instructor: Dan Tiba.
Topics: mathematical background and techniques on which the topic of computer-aided design relies, including numerical experiments, fundamental theoretical points, and proofs.

Math in Moscow Program

◇ **Ergodic Theory of Dynamical Systems**, Spring 2007.
Instructors: Yulij Ilyashenko and Tatiana Golenishcheva-Kutuzova.
Texts: M. Blank, *Ergodic Theory of Noninvertible Transformations*, B. Hasselblat and A. Katok: *Introduction to the Modern Theory of Dynamical Systems*, I.P. Kornfeld, S.V. Fomin, and Ya.G. Sinai: *Ergodic Theory*.
Topics: Dynamical systems, trajectories, simple and strange attractors, chaoticity, action on measures, notion of a transfer operator, invariant measures, ergodicity, Birkhoff ergodic theorem, mixing, ergodic constructions (direct and skew products, Poincare and integral maps, natural extension and noninvertibility), entropy: metric and topological approaches, Sinai-Bowen-Ruelle and natural/observable measures, direct operator formalism (Banach spaces of signed measures, Ionescu-Tulcea and Marinescu ergodic theorem, random perturbations), spectral theory for Koopman and transfer operators, approximation by finite rank operators, multicomponent systems: phase transitions, mathematical background of numerical simulations.

◇ **Programming: From an Art to a Science**, Spring 2007.
Instructors: Alexander Shen and Nikolai Vereshchagin.
Text: Alexander Shen, *Algorithms and Programming: Theorems and Problems*.
Topics: Constructions, variables, assignments, loops, invariants, arrays, one-pass algorithms, combinatorial objects, tree traversal, backtracking, finite automata, sorting and related problems, data structures, sets and their representations, hashing, trees, balanced trees, algorithms on graphs, recursion, context-free grammars, recursive parsing, LL(1), LR(1) parsers.

◇ **Advanced Russian Language**, Spring 2007.
Instructor: Elena Tsfasman.

◇ **Russian Literature**, Spring 2007.
Instructor: Anton Nesterov.
Topics: Early literature (pre-Lomonosov); XVIII century: Lomonosov, Trediakovsky, Sumarokov, Derzhavin; Early XIX century: Karamzin, Zhukovsky; Pushkin: poetry, prose, dramas; Lermontov: poetry, prose; Gogol, Turgenev, Saltykov-Shchedrin, Leskov, Tutchev, Fet, Nekrasov; Early and late Dostoevsky and Tolstoy; Chekhov, Gorky (dramas); Silver Age: Blok, Bely, Kuzmin, Khodasevich; The Great Four: Akhmatova, Tsvetaeva, Mandelshtam, Pasternak; Russian Period: Bunin, Nabokov; Bulgakov, Platonov; 1960s and 70s: Shushkin, Trifonov, Aksenov, Erofeev, Sokolov, Dovlatov; Joseph Brodsky; modern poetry and prose.

Budapest Semesters in Mathematics Program

◇ **Advanced Abstract Algebra**, Autumn 2006.
Instructor: Péter Hermann.
Text: D.J. Robinson, *A Course in the Theory of Groups*.
Topics: Permutation actions, the Sylow theorems, finite permutation groups, some properties of $p$-groups, the Schur-Zassenhaus theorem, the transfer and its applications, solvable groups, nilpotent groups, free groups. A brief introduction to character theory of finite groups.

◇ **Galois Theory**, Autumn 2006.
Instructor: Csaba Szabó.
Text: Ian Stewart, *Galois Theory*.
Topics: Cubic equations, field extensions, splitting fields, automorphisms of field extensions, Galois correspondence, solvability of equations by radials, transcendental extensions, finite fields, ordered fields.

◇ **Introduction to Number Theory**, Autumn 2006.
Instructor: Mátyás Domokos.
Text: Melvyn B. Nathanson: *Elementary Methods in Number Theory*.
Topics: Divisibility, Euclidean algorithm, congruency, residue systems, Euler's function, Euler-Fermat theorem, Chinese remainder theorem, power residues, Dirichlet's theorem, quadratic residues, Legendre symbol, quadratic reciprocity, quadratic forms, arithmetic functions, valley theorem, diophantine equations, Fermat's last theorem, algebraic and transcendental numbers, Gaussian integers, cyclotomic polynomials.

◇ **Topology**, Autumn 2006.
Instructor: Alex Küronya.
Text: James Munkres: *Topology*.
Topics: Metric and topological spaces, continuity, connectedness, compactness, algebraic topology, classification of compact, connected surfaces.

◇ **Intermediate Hungarian Language**, Autumn 2006.
Instructor: Erika Fallier.

University of New Hampshire: Mathematics Courses

◇ **Probability and Stochastic Processes**, Autumn 2007.
Instructor: Linyuan Li.
Text: Sheldon Ross, *A First Course in Probability*.
Topics: Probability concepts, random variables, expectations, discrete and continuous probability distributions, joint distributions, conditional distributions, moment-generating functions, convergence of random variables.

◇ **Introduction to Numerical Methods**, Autumn 2007.
Instructor: Steve Wineberg.
Text: Burden and Faires, *Numerical Analysis*.
Approximation methods, polynomial interpolation, root finding, numerical linear algebra, numerical integration, approximation of differential equations.

◇ **Foundations of Applied Mathematics**, Autumn 2007.
Instructor: Marianna Shubov.
Text: Mark Pinsky, *Partial Differential Equations and Boundary Value Problems with Applications*.
Topics: PDE classification, superposition, separation of variables, orthonormal functions, completeness, convergence, Fourier series, Sturm-Liouville eigenvalue problems, eigenfunctions. Analysis and solution of boundary value problems including heat, wave, and Laplace equations.

◇ **Linear Algebra**, Spring 2006.
Instructor: Ed Hinson.
Text: Stephen Friedberg, *Linear Algebra*.
Topics: Vector spaces over arbitrary fields, linear transformations and their relationship with matrices, eigenvalues and eigenvectors, rational and Jordan canonical forms for linear transformations.

◇ **Complex Analysis**, Spring 2006.
Instructor: L. Robb Jacoby.
Topics: Complex functions, sequences, limits, differentiation, Cauchy-Riemann equations, elementary functions, Cauchy's theorem and formula, Taylor and Laurent series, residues, conformal mapping.

◇ **Introduction to Partial Differential Equations**, Autumn 2005.
Instructor: Marianna Shubov.
Topics: Separation of variables, Fourier series, weak and strong solutions, eigenfunction expansions, the Sturm-Liouville problem, Green's functions and fundamental solutions, method of characteristics, and conservation laws.

◇ **Abstract Algebra**, Autumn 2005.
Instructor: Ed Hinson.
Text: Fraleigh, *Abstract Algebra*.
Topics: Basic properties of groups, rings, fields, and their homomorphisms.

◇ **One-Dimensional Real Analysis**, Autumn 2005.
Instructor: Eric Nordgren.
Topics: Theory of limits, continuity, differentiability, integrability.

◇ **Independent Study: Chaos Theory and Dynamical Systems**, Autumn 2005.
Instructor: Mitrajit Dutta.
Topics: linear and nonlinear systems of ordinary differential equations, discrete maps, phase plane analysis, bifurcations, and computer simulations.

◇ **Linearity I/II**, Autumn 2004 and Spring 2005.
Instructor: Gertrud Kraut.
Topics: Linearization, matrix algebra, calculus of several variables, difference equations, linear transformations, differential equations, eigenvalue analysis, phase plane analysis, vector calculus.

◇ **Mathematical Proof**, Autumn 2004.
Instructor: Samuel Shore.
Topics: Set theory, basic logic, mathematical writing.

◇ **Honors Calculus I/II**, Autumn 2003 and Spring 2004.
Instructor: Kelly Black.
Text: James Stewart, *Calculus*.
Topics: Limits, derivatives, curve sketching, max-min problems, related rates, volumes/areas, integration, polar coordinates, series.

University of New Hampshire: Russian Courses

◇ **Advanced Russian Language and Style**, Spring 2008.
Instructor: Ronald LeBlanc.
Topics: Most difficult problems of Russian grammar and syntax in poetry and prose.

◇ **Russian Conversation and Phonetics**, Autumn 2007.
Instructor: Aleksa Fleszar.
Text: William Hamilton, *Introduction to Russian Phonology and Word Structure*.
Topics: Practical application of fundamental phonetic theory of spoken Russian.

◇ **Advanced Russian Conversation and Composition I/II**, Autumn 2007 and Spring 2008.
Instructors: Arna Bronstein and Aleksa Fleszar.
Texts: George Patrick, *Roots of the Russian Language*, Derek Offord, *Using Russian*.

◇ **Devils, Deities, and Madness in Russian Literature**, Spring 2005.
Instructor: Arna Bronstein.
Topics: Pushkin, Gogol, Dostoevsky, Tolstoy, Chekhov, Sologub, Bely, Bulgakov.

◇ **Intermediate Russian I/II**, Autumn 2004 and Spring 2005.
Instructor: Ronald LeBlanc.
Text: Davis, Bronstein, Fleszar, Oprendek, *Making Progress in Russian*.

◇ **Contemporary Russian Society and Culture**, Spring 2004.
Instructors: Arna Bronstein and Aleksa Fleszar.
Topics: Leadership, authority and power, family, women, youth, education, the New Russians. How Russians are adapting to the changes that have taken place in society since the collapse of communism.

◇ **Elementary Russian I/II**, Autumn 2003 and Spring 2004.
Instructors: Arna Bronstein and Ron LeBlanc.
Text: Smyth and Crosbie, *Rus'*.

University of New Hampshire: General Courses

◇ **Syntax and Semantic Theory**, Spring 2008.
Instructor: Rochelle Lieber.
Text: Andrew Carnie, *Syntax: A Generative Introduction*.
Topics: Syntax and semantics of English, construction of arguments for and against particular analyses.

◇ **United States in World Affairs**, Spring 2008.
Instructor: Lawrence Reardon.
Texts: Edward Judge, *The Cold War: A History Through Documents*, Walter Lafeber, *America, Russia, and the Cold War 1945–2006*.
Topics: American foreign policy and international engagement from Cold War through present.

◇ **Introduction to Linguistics**, Autumn 2008.
Instructor: Rochelle Lieber.
Text: Fromkin, Rodman, Hyams, Thomas: *An Introduction to Language*.
Topics: Universal properties of human language, Chomsky's innateness hypothesis, language acquisition, dialects and language variation, language change, introduction to modern grammar and scientific linguistic methodology.

◇ **Principles of Biology I/II**, Spring 2006.
Instructor: Jackson Pollard.
Text: Peter Raven, *Biology*.
Topics: Cell structure, function, transport mechanisms, Mendelian and molecular genetics and gene technology, physiology of cells, tissues, organs, organ systems, evolution, human impact on biosphere.

◇ **Survey of Music in America**, Autumn 2005.
Instructor: Robert Stiefel.
Topics: Early American music, European influences, blues, jazz, modern American composers.

◇ **Honors Physics I/II**, Autumn 2003, Spring 2004.
Instructors: James Ryan and Karsten Pohl.
Topics: motion, forces, energy, momentum, rotation, oscillations, waves, sound, heat, electricity and magnetism.

◇ **Introduction to Psychology**, Autumn 2003.
Topics: Research methods, behavioral neuroscience, sensation and perception, cognition, learning, development, personality, psychopathology, social psychology, and evolutionary psychology.