

COURSE DESCRIPTIONS

MATH 440S	Internship	1 to 8 CREDITS	MATH 314	Foundations of Geometry	4 CREDITS
				Modern axiomatic development of plane geometry and related systems. Includes investigation of finite geometry and hyperbolic geometry.	
MATH 101	Fundamentals of Algebra	4 CREDITS	MATH 321	Advanced Calculus	4 CREDITS
	Algebra is the alphabet of college math courses. Sharpen your algebra skills in an active, inquiry-based environment, and apply them to real-world mathematical models.			Calculus is the close study of infinity, a notoriously slippery concept. How do we know that the calculus we do is "actually true"? We'll follow a similar path to the mathematical detectives who set out to rigorously determine which infinite computations were reliable and which were simply wishful thinking. Topics include point-set topology of the real numbers, a treatment of limits for sequences and functions, continuity, and differentiability.	
MATH 144	Functions Modeling Change	4 CREDITS	MATH 323	Complex Analysis	4 CREDITS
	Mathematical models are representations that approximate real-world systems. This course introduces students to important classes of models (linear, quadratic, exponential, logarithmic, and trigonometric) that are commonly used to describe phenomena across many disciplines. Students will develop algebraic skills in the service of modeling, solving, and forecasting.			Functions of one complex variable, analyticity, Cauchy-Riemann equations, derivatives and integrals of complex functions, complex series, and residue theory.	
MATH 200	Special Topics	1 to 4 CREDITS	MATH 341	Topology	4 CREDITS
	Prerequisite: consent of mathematics faculty. Offered on sufficient demand.			Topology is often called "rubber-sheet geometry". In topology, we think of shapes as being made of play-doh and consider two shapes "topologically equivalent" if we can mold one into the other by stretching, shrinking, or smoothing, but not tearing or poking holes. Topology studies the properties of sets, such as geometric shapes or surfaces, that are unchanged under such "play-doh deformations".	
MATH 201	Calculus I	4 CREDITS	MATH 362	Topics in Applied Mathematics	4 CREDITS
	Calculus is the study of change. Learn how to use the derivative and the integral to quantify how things change in the physical and life sciences, economics, and the world around you.			A range of applied mathematics topics building on a foundation of linear algebra, differential equations, and discrete mathematics. Possible topics include optimization, numerical analysis, algorithm analysis and design, algorithms on graphs and trees, math modeling, dynamical systems, and statistical learning theory. May be taken for credit more than once with instructor's approval.	
MATH 202	Calculus II	4 CREDITS	MATH 363	Differential Equations	4 CREDITS
	Calculus is the study of change and accumulation centered on the idea of infinity. Learn how to evaluate integrals, infinite series, and differential equations and make practical use of the idea of infinity with applications to geometry, the physical and life sciences, and economics.			Differential equations are used to describe phenomena that involve change. This course includes solutions of first- and second-order differential equations with a focus on analytic, numerical, and qualitative analysis of systems of linear and non-linear differential equations. Other topics may include Laplace transforms, power series methods, Fourier series methods, and topics from partial differential equations. Applications may be drawn from physics, chemistry, biology, and the social sciences.	
MATH 203	Multivariate Calculus	4 CREDITS	MATH 387	Undergraduate Teaching	1 CREDIT
	Many real-world phenomena can be modeled as functions of several variables. Learn how to use calculus-the study of change and accumulation-in the multivariable context, with applications to the curvature of multi-dimensional spaces and the flow of fluids through them.			For teaching assistants in lower division mathematics problem-solving courses. A maximum of two credit hours of MATH 387 may be applied toward the major or minor. Requires consent of program director. This course is repeatable for credit.	
MATH 210	Discrete Mathematics	4 CREDITS	MATH 401	Directed Studies	1 to 4 CREDITS
	How do mathematicians define "truth", and how do we argue that a mathematical fact is true? Discrete mathematics is an "introduction to proof" course. We will learn basic proof techniques and apply them to "discrete" mathematical objects like sets, sequences, and graphs. We'll also study combinatorics, propositional logic, and functions and relations. We hope to help you learn to communicate mathematics effectively and to explore what happens in a discrete world.			A tutorial-based course used only for student-initiated proposals for intensive individual study of topics not otherwise offered in the Mathematics Program. Requires junior or senior standing and consent of instructor and school dean. This course is repeatable for credit.	
MATH 300	Special Topics in Mathematics	1 to 4 CREDITS	MATH 440	Internship	1 to 8 CREDITS
	Special courses offered when there is sufficient demand.			Offers students the opportunity to integrate classroom knowledge with practical experience. Students will be graded on assigned coursework and evaluation by their site supervisor. Prerequisites: 60 college credits completed (for transfer students at least 15 hours completed at Westminster or permission of instructor), minimum 2.5 GPA, and consent of faculty advisor and Career Center internship coordinator. Interns will work for 42 hours per each registered credit. This course is repeatable for credit. Some majors limit how many internship credits may count towards the major, consult your faculty advisor. REGISTRATION NOTE: Registration for internships is initiated through the Career Center website and is finalized upon completion of required paperwork and approvals. More info: 801-832-2590 https://westminstercollege.edu/student-life/career-center/internships.html	
MATH 308	Putnam Seminar	1 CREDIT	MATH 485	Senior Seminar	2 CREDITS
	In preparation for the William Lowell Putnam Mathematical competition, you will tour the various areas of undergraduate mathematics in an exploration of various problem-solving techniques. May be taken twice for credit.			As the capstone to your mathematical career at Westminster, Senior Seminar provides the opportunity for you to summarize your experience by investigating a mathematical area that you love and want to know more about. As part of the Senior Showcase, you will have the opportunity	
MATH 310	Probability and Statistics	4 CREDITS			
	Introduction to probability theory including combinatorial analysis, conditional probability, discrete and continuous random variables, expectation and variance, jointly distributed random variables, and sampling theory.				
MATH 311	Linear Algebra II	4 CREDITS			
	Rigorous treatment of general vector spaces, linear transformations, eigenvalues and eigenvectors building on the material in Linear Algebra.				
MATH 312	Abstract Algebra	4 CREDITS			
	Abstract algebra develops a language and system for studying mathematical objects and the algebraic relationships between them. For example, numbers and arithmetical operations are seen as special cases of more general structures called groups, rings, and fields. This is a rigorous, proof-based course. It is strongly recommended that students take one or more upper-division math courses and have junior or senior standing before registering for Abstract Algebra.				

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to share this mathematical passion with your class and the Westminster community. You will also develop a final portfolio of the work you've completed throughout your mathematical career. (WCore: SC)