Mathematics with Computing Science

Acquire the knowledge and hands-on skills to make a meaningful impact in the world of Computing Science.

Much of today's world is dependent on computing systems and technology. From small businesses to multi-national corporations, from home to government, we rely heavily on computing professionals. The field continues to grow and change, and offers exciting opportunity to support and influence society.

With Trinity Western's liberal arts and sciences education, you can approach Computing Science with a larger appreciation for other disciplines and their relation to your field of study. Pure, analytical class work is matched with many opportunities for Computing Science students to gain hands-on experience, research & leadership opportunities. Experienced faculty lead active research opportunities, and a specialized computer lab is dedicated to senior projects. The ultimate goal is to prepare graduates to have a meaningful impact in the workplace.

ID	COURSE	CREDITS
CMPT 140	**CMPT 140 - Introduction to Computing Science & Programming I	2022-2023** An elementary introduction to computing science and programming as a problem-solving tool. Fundamental concepts and terminology of computing science will be introduced. Programming skill will be obtained by using a high-level language. Topics will include: abstraction, data types and control structures, fundamental algorithms and pseudocode, computability and complexity, and computer architecture.	3
CMPT 166	**CMPT 166 - Introduction to Computing Science and Programming II	2022-2023** A rigorous introduction to computing science and computer programming. Students will learn in-depth programming concepts by seeing how object oriented (OO) concepts are employed in the design and writing of code in a variety of notations. The emphasis is on the theory of OO programming and design of solutions, as well as implementation using an OO language such as Java or C++.	3
MATH 123	**MATH 123 - Calculus I	2022-2023** An introduction to the basic elements of calculus and its applications to modeling solutions to quantitative and computational problems encountered in mathematics and science.	3
MATH 124	**MATH 124 - Calculus II	2022-2023** Transcendental functions, integration techniques, polar co-ordinates, sequences, series, and	3

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	Taylor series.	
MATH 150	**MATH 150 - Introduction to Discrete Math | 2022-2023** An introduction to those branches of pure mathematics which are most commonly used in the study of Computing Science and/or have other practical applications. Topics include logic, proofs, switching circuits, set theory, induction, functions, languages, finite automata, combinatorics, and algebraic structures.	3
MATH 223	**MATH 223 - Calculus III | 2022-2023** Multivariate calculus. Topics include vectors, vector functions and derivatives; curves; partial and directional derivatives; Lagrange multipliers; double and triple integrals; spherical and cylindrical co-ordinates; vector integrals, Green's Theorem, and surface integrals.	3
MATH 250	**MATH 250 - Linear Algebra | 2022-2023** Systems of linear equations, matrices, determinants, vector spaces, linear transformations, eigenvalues and eigenvectors, diagonalization applications, and linear programming.	3
MATH 410	**MATH 410 - Senior Thesis | 2022-2023** Student-led inquiry into a chosen area of mathematics with a final written report on the research.	2
NATS 483	**NATS 483 - Christian Perspectives in the Sciences: Computing Science | 2022-2023** This is a liberal arts-oriented capstone course concerning the integration of Christianity with computing science and other disciplines taught within the Faculty of Natural and Applied Sciences. Christian beliefs are applied to an understanding and evaluation of modern science and technology. The course integrates elements of theology, history and philosophy of science, and specific topics where Christian faith and science intersect. This course consists of three parts: general topics in science, further exploration of topics for students within computing science, and student-led seminars in interdisciplinary groups.	3
NATS 484	**NATS 484 - Christian Perspectives in the Sciences: Mathematics | 2022-2023** This is a liberal arts-oriented capstone course concerning the integration of Christianity with mathematics and other disciplines taught within the Faculty of Natural and Applied Sciences. Christian beliefs found in Scripture are applied to an understanding and evaluation of modern science and technology. The course integrates elements of theology, history and philosophy of science, and specific topics where Christian faith and science intersect. This course consists of three parts: general topics in science, further exploration of topics for students within Mathematics, and student-led seminars in interdisciplinary groups.	3
PHYS 111	**PHYS 111 - Fundamentals of Physics I | 2022-2023** Students investigate physical reality employing basic principles of Newtonian mechanics which allow the description and explanation of motion: three-dimensional kinematics, dynamics of	3

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	particles and rigid bodies including work, energy, momentum, rotational motion, simple harmonic motion, and fluids.	