Archived: August 11, 2020

Arts, Humanities and Social Sciences Programs

Mathematics (BA)

Location Offered:
Nanaimo
Credential:
Bachelor Degree
Options:
Major, Minor
Program Length:
4 Years

The Program

Mathematics is the language of quantitative systems and is of fundamental importance to any person who wishes to become scientifically literate. Program graduates will be confident mathematical thinkers who are comfortable with abstraction and skilled at constructing quantitative models framing complex problems.

The program's mission is to expose students to the vast landscape of advanced mathematical concepts and applications that lie beyond first year introductory calculus. The program aims to develop not only problem solving skills, but also critical thinking and writing skills. Program graduates will have broad exposure to both pure and applied mathematics (including statistics), and thus be suitably prepared to enter the job market immediately or to continue study at the graduate level.

Mathematics graduates find employment in virtually any field in which quantitative comfort and reasoning is required: computing, finance (including banking and insurance), government, actuarial science, teaching and research. Postgraduate opportunities likewise exist in mathematics and related disciplines: engineering, business, economics, finance, computer science and law.

The Bachelor of Arts, Minor in Mathematics is designed to be taken as part of a Double Minor or a Major/Minor combination for a Bachelor of Arts degree.

Program Outline

Requirements for a Major

Students must fulfill all the Institutional B.A. degree requirements, including Degree English Requirements and courses listed below:

Years 1 and 2	Credits
Select *either*: MATH 100 - (Calculus for Engineering and Physical Sciences I) and, MATH 101 - (Calculus for Engineering and Physical Sciences II) or, MATH 121 - (Calculus I) and, MATH 122 - (Calculus II)	6
MATH 123 - (Logic and Foundations)	3
CSCI 160 - (Computer Science I)	4
CSCI 161 - (Computer Science II)	4
MATH 221 - (Calculus III)	3
MATH 254* - (Statistics I)	3
MATH 241 - (Linear Algebra)	3
MATH 223 - (Discrete and Combinatorial Mathematics)	3
MATH 222 - (Calculus IV) *or*, MATH 251 - (Differential Equations)	3

*Program students interested in advanced courses in statistics (MATH 325, 326, or 421) are recommended to also take MATH 255.

Years 3 and 4	Credits
MATH 330 - (Introduction to Abstract Algebra)	3
MATH 335 - (Numerical Analysis I)	3
MATH 371 - (Introductory Real Analysis)	3
MATH 372 - (Introductory Complex Variables)	3
Minimum of 18 additional credits of courses numbered 300 or above, at least 6 credits of which must be courses numbered 400 or above, selected from the following*: CSCI 320 - (Foundations of Computer Science) CSCI 340 - (Numerical Methods) MATH 300 - (Geometry) MATH 310 - (Introduction to Graph Theory) MATH 317 - (Vector Calculus) MATH 320 - (Applied Probability) MATH 325 - (Regression Analysis) MATH 326 - (Design of Experiments) MATH 331 - (Cryptography) MATH 340 - (Applications of Mathematics) MATH 341 - (Linear Algebra II) MATH 345 - (Mathematical Modeling) MATH 346 - (Mathematical Biology) MATH 350 - (History of Mathematics) MATH 360 - (Problem Solving) MATH 362 - (Elementary Number Theory) MATH 370 - (Topics in Mathematics) MATH 421 - (Introduction to Mathematical Statistics) MATH 430 - (Abstract Algebra II) MATH 441 - (Abstract Linear Algebra) MATH 443 - (Introduction to Linear Programming) MATH 450 - (Topology) MATH 451 - (Introduction to Partial Differential Equations) MATH 465 - (Error Correcting Codes) MATH 470 - (Advanced Topics in Mathematics) MATH 471 - (Real Analysis II) MATH 472 - (Complex Variables II)	18

* A limited number of these courses will be offered each year. Course offerings will vary according to student demand and area of specialization of teaching faculty.

Recommended Electives

A number of courses in other disciplines naturally complement the study of mathematics, particularly those that apply mathematical techniques directly or those that emphasize logic, sound reasoning, and clear communication. These include, among others, CSCI 260 and 322; ENGL 115, 203, 204, and 208; PHIL 100, 251 and 252; PHYS 216. Program students may wish to consider these courses when selecting electives.

Requirements for a Minor

Students must fulfill all the Institutional B.A. degree requirements, including Degree English Requirements and courses listed below:

Years 1 and 2	Credits
Select *either*: MATH 100 - (Calculus for Engineering and Physical Sciences I) and, MATH 101 - (Calculus for Engineering and Physical Sciences II) or, MATH 121 - (Calculus I) and, MATH 122 - (Calculus II)	6
MATH 123 - (Logic and Foundations)	3
MATH 221 - (Calculus III)	3
MATH 211 - (Fundamentals of Statistics I)	3
MATH 241 - (Linear Algebra)	3
Select at least *one* of the following: MATH 223 - (Discrete and Combinatorial Mathematics) *or*, MATH 222 - (Calculus IV) *or*, MATH 251 - (Differential Equations)	3

Years 3 and 4	Credits
Minimum of 18 credits of Mathematics courses numbered 300 or above.*	18

* *Check individual course prerequisites.*

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