

Dynamic Schedule: Visit [Minerva Class Schedule](#)https://horizon.mcgill.ca/pban1/bwckschd.p_disp_dyn_sched for course dates & times.McGill.ca (<https://www.mcgill.ca>) / Overview (/study/2022-2023/) / All Courses (/study/2022-2023/courses/search)

MATH 314 Advanced Calculus (3 credits)

Offered by: Mathematics and Statistics ([Faculty of Science \(/study/2022-2023/faculties/science/\)](#))

Overview

Mathematics & Statistics (Sci) : Derivative as a matrix. Chain rule. Implicit functions. Constrained maxima and minima. Jacobians. Multiple integration. Line and surface integrals. Theorems of Green, Stokes and Gauss. Fourier series with applications.

Terms: Fall 2022, Winter 2023

Instructors: Roth, Charles (Fall) Fortier, Jérôme (Winter)

- Prerequisites: [MATH 133 \(/study/2022-2023/courses/math-133\)](#), [MATH 222 \(/study/2022-2023/courses/math-222\)](#)
- Restriction: Not open to students who have taken or are taking [MATH 248 \(/study/2022-2023/courses/math-248\)](#) or [MATH 358 \(/study/2022-2023/courses/math-358\)](#).

This course may be used as a required or complementary course in the following programs:

[Bachelor of Arts \(B.A.\) - Major Concentration Mathematics \(/https://www.mcgill.ca/study/2022-2023/faculties/arts/undergraduate/programs/bachelor-arts-ba-major-concentration-mathematics\)](#)

[Bachelor of Arts \(B.A.\) - Major Concentration Mathematics \(/https://www.mcgill.ca/study/2022-2023/faculties/basc/undergraduate/programs/bachelor-arts-ba-major-concentration-mathematics\)](#)

[Bachelor of Arts \(B.A.\) - Minor Concentration Mathematics \(/https://www.mcgill.ca/study/2022-2023/faculties/arts/undergraduate/programs/bachelor-arts-ba-minor-concentration-mathematics\)](#)

[Bachelor of Arts \(B.A.\) - Minor Concentration Mathematics \(/https://www.mcgill.ca/study/2022-2023/faculties/basc/undergraduate/programs/bachelor-arts-](#)

[ba-minor-concentration-mathematics\)](#)

[Bachelor of Arts \(B.A.\) -
Supplementary Minor
Concentration Statistics
\(<https://www.mcgill.ca/study/2022-2023/faculties/arts/undergraduate/programs/bachelor-arts-ba-supplementary-minor-concentration-statistics>\)](#)

[Bachelor of Arts \(B.A.\) -
Supplementary Minor
Concentration Statistics
\(<https://www.mcgill.ca/study/2022-2023/faculties/basc/undergraduate/programs/bachelor-arts-ba-supplementary-minor-concentration-statistics>\)](#)

[Bachelor of Arts and Science
\(B.A. & Sc.\) - Major
Concentration Physics
\(<https://www.mcgill.ca/study/2022-2023/faculties/basc/undergraduate/programs/bachelor-arts-and-science-ba-sc-major-concentration-physics>\)](#)

[Bachelor of Commerce
\(B.Com.\) - Major
Concentration Mathematics for
Management Students
\(<https://www.mcgill.ca/study/2022-2023/faculties/desautels/undergraduate/programs/bachelor-commerce-bcom-major-concentration-mathematics-management-students>\)](#)

[Bachelor of Education \(B.Ed.\)
- Secondary Mathematics
\(<https://www.mcgill.ca/study/2022-2023/faculties/education/undergraduate/programs/bachelor-education-bed-secondary-mathematics>\)](#)

[Bachelor of Science \(B.Sc.\) -
Honours Atmospheric Science
\(<https://www.mcgill.ca/study/2022-2023/faculties/science/undergraduate/programs/bachelor-science-bsc-honours-atmospheric-science>\)](#)

[Bachelor of Science \(B.Sc.\) -
Honours Biology - Quantitative
Biology
\(<https://www.mcgill.ca/study/2022-2023/faculties/science/undergraduate/programs/bachelor>](#)

[science-bsc-honours-biology-quantitative-biology\)](#)

[Bachelor of Science \(B.Sc.\) - Honours Earth System Science](#)
(<https://www.mcgill.ca/study/2022-2023/faculties/science/undergraduate/programs/bachelor-science-bsc-honours-earth-system-science>)

[Bachelor of Science \(B.Sc.\) - Honours Geology](#)
(<https://www.mcgill.ca/study/2022-2023/faculties/science/undergraduate/programs/bachelor-science-bsc-honours-geology>)

[Bachelor of Science \(B.Sc.\) - Honours Physics and Computer Science](#)
(<https://www.mcgill.ca/study/2022-2023/faculties/science/undergraduate/programs/bachelor-science-bsc-honours-physics-and-computer-science>)

[Bachelor of Science \(B.Sc.\) - Honours Planetary Sciences](#)
(<https://www.mcgill.ca/study/2022-2023/faculties/science/undergraduate/programs/bachelor-science-bsc-honours-planetary-sciences>)

[Bachelor of Science \(B.Sc.\) - Liberal Program - Core Science Component Atmospheric and Oceanic Sciences](#)
(<https://www.mcgill.ca/study/2022-2023/faculties/science/undergraduate/programs/bachelor-science-bsc-liberal-program-core-science-component-atmospheric-and-oceanic-sciences>)

[Bachelor of Science \(B.Sc.\) - Liberal Program - Core Science Component Mathematics](#)
(<https://www.mcgill.ca/study/2022-2023/faculties/science/undergraduate/programs/bachelor-science-bsc-liberal-program-core-science-component-mathematics>)

[Bachelor of Science \(B.Sc.\) - Liberal Program - Core Science Component Physics](#)
(<https://www.mcgill.ca/study/2022-2023/faculties/science/undergraduate/programs/bachelor-science-bsc-liberal-program-core-science-component-physics>)

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aduate/programs/bachelor-
science-bsc-liberal-program-
core-science-component-
physics)

Bachelor of Science (B.Sc.) -
Liberal Program - Core
Science Component Statistics
([https://www.mcgill.ca/study/20](https://www.mcgill.ca/study/2022-2023/faculties/science/undergraduate/programs/bachelor-science-bsc-liberal-program-core-science-component-statistics)
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aduate/programs/bachelor-
science-bsc-liberal-program-
core-science-component-
statistics)

Bachelor of Science (B.Sc.) -
Major Atmospheric Science
([https://www.mcgill.ca/study/20](https://www.mcgill.ca/study/2022-2023/faculties/science/undergraduate/programs/bachelor-science-bsc-major-atmospheric-science)
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aduate/programs/bachelor-
science-bsc-major-
atmospheric-science)

Bachelor of Science (B.Sc.) -
Major Atmospheric Science
and Physics
([https://www.mcgill.ca/study/20](https://www.mcgill.ca/study/2022-2023/faculties/science/undergraduate/programs/bachelor-science-bsc-major-atmospheric-science-and-physics)
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2023/faculties/science/undergr
aduate/programs/bachelor-
science-bsc-major-
atmospheric-science-and-
physics)

Bachelor of Science (B.Sc.) -
Major Biology - Quantitative
Biology
([https://www.mcgill.ca/study/20](https://www.mcgill.ca/study/2022-2023/faculties/science/undergraduate/programs/bachelor-science-bsc-major-biology-quantitative-biology)
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aduate/programs/bachelor-
science-bsc-major-biology-
quantitative-biology)

Bachelor of Science (B.Sc.) -
Major Biology and
Mathematics
([https://www.mcgill.ca/study/20](https://www.mcgill.ca/study/2022-2023/faculties/science/undergraduate/programs/bachelor-science-bsc-major-biology-and-mathematics)
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aduate/programs/bachelor-
science-bsc-major-biology-
and-mathematics)

Bachelor of Science (B.Sc.) -
Major Earth System Science
([https://www.mcgill.ca/study/20](https://www.mcgill.ca/study/2022-2023/faculties/science/undergraduate/programs/bachelor-science-bsc-major-earth-system-science)
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aduate/programs/bachelor-
science-bsc-major-earth-
system-science)

Bachelor of Science (B.Sc.) -
Major Mathematics
([https://www.mcgill.ca/study/20](https://www.mcgill.ca/study/2022-2023/faculties/science/undergraduate/programs/bachelor-science-bsc-major-mathematics)

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aduate/programs/bachelor-
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mathematics)

Bachelor of Science (B.Sc.) -
Major Physics
([https://www.mcgill.ca/study/20](https://www.mcgill.ca/study/2022-2023/faculties/science/undergraduate/programs/bachelor-science-bsc-major-physics)
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aduate/programs/bachelor-
science-bsc-major-physics)

Bachelor of Science (B.Sc.) -
Major Physics and Computer
Science
([https://www.mcgill.ca/study/20](https://www.mcgill.ca/study/2022-2023/faculties/science/undergraduate/programs/bachelor-science-bsc-major-physics-and-computer-science)
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aduate/programs/bachelor-
science-bsc-major-physics-
and-computer-science)

Bachelor of Science (B.Sc.) -
Major Physics and Geophysics
([https://www.mcgill.ca/study/20](https://www.mcgill.ca/study/2022-2023/faculties/science/undergraduate/programs/bachelor-science-bsc-major-physics-and-geophysics)
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aduate/programs/bachelor-
science-bsc-major-physics-
and-geophysics)

Bachelor of Science (B.Sc.) -
Major Physics: Biological
Physics
([https://www.mcgill.ca/study/20](https://www.mcgill.ca/study/2022-2023/faculties/science/undergraduate/programs/bachelor-science-bsc-major-physics-biological-physics)
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aduate/programs/bachelor-
science-bsc-major-physics-
biological-physics)

Bachelor of Science (B.Sc.) -
Major Physiology and
Mathematics
([https://www.mcgill.ca/study/20](https://www.mcgill.ca/study/2022-2023/faculties/science/undergraduate/programs/bachelor-science-bsc-major-physiology-and-mathematics)
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aduate/programs/bachelor-
science-bsc-major-physiology-
and-mathematics)

Bachelor of Science (B.Sc.) -
Major Physiology and Physics
([https://www.mcgill.ca/study/20](https://www.mcgill.ca/study/2022-2023/faculties/science/undergraduate/programs/bachelor-science-bsc-major-physiology-and-physics)
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aduate/programs/bachelor-
science-bsc-major-physiology-
and-physics)

Bachelor of Science (B.Sc.) -
Major Statistics
([https://www.mcgill.ca/study/20](https://www.mcgill.ca/study/2022-2023/faculties/science/undergraduate/programs/bachelor-science-bsc-major-statistics)
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2023/faculties/science/undergr
aduate/programs/bachelor-
science-bsc-major-statistics)

Bachelor of Science (B.Sc.) -
Major Statistics and Computer
Science

(<https://www.mcgill.ca/study/2022-2023/faculties/science/undergraduate/programs/bachelor-science-bsc-major-statistics-and-computer-science>)



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Class Schedule

(https://horizon.mcgill.ca/pban1/bwckschd.p_disp_dyn_sched)

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